KRESYANINOV, A.G.

RAYKHBAUM, Ya.D.; KRES'YANINOV, A.G.

Electric erosion of metals in spark discharge. Izv. AN SSSR Ser.fiz.18 no.2:258 Mr-Ap '54. (MLRA 7:11)
(Spectrum analysis) (Electric spark)

Kresz, I.

Investigation of the bone development of Korean Children. p. 71

ANTHROPOLOGIAI KOZLEMENYEK. Budapest, Hungary. Vol. 2, no. 3/4, 1958

Monthly List of East European Accessions, (EEAI) LC, Vol. 9, No 1, Jan. 1960
Uncl.

KRESZ, MARIA

Magyar parasztviselet, 1820-1867

Budapest, Hungary. Akademiai Kiado, 1956. 234 p.

Monthly List of East European Accessions (EEAI), LC. Vol. 8, No. 9, September 1959
Uncl.

KRESZ, MARIA

Ungarische Bauerntrachten, 1820-1867. (Übers. von Jeannette Hajdu) Berlin, Henscheiverlag Kunst and Gesellschaft, 1957. 163 p. 96 plates (part col., in portfolio) (Hungarian peasant costumes, 1820-1867. In German, illus., map, bibl., facsims., tables)

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

KRESZ, Otto

Experiment milling achievements in connection with the Italian varieties of wheat grown in Hungary. Pecsi musz szeml 6 no.1:20-25 Ja-Mr '61.

KRESZ, Otto

The Flour Mill of Pecs. Pecsi musz szoml 5 no.3:24-26 Jl-S '60.

GEBALA, A.; HANICKA, M.; KRET, B.

Investigations on the sex chromation in oral mucosa smears in children. Folia biol 8 no.1/2:97-104 '60. (EEAI 10:4)

1. Pediatric Clinic, Medical Academy, Krakow; head: Prof. Dr. T.Giza and Department of Histology, Medical Academy, Krakow; head: Prof. Dr. J.Ackermann.

(CHILDREN)
(SEX (BIOLOGY))
(CHROMATION)
(MUCOUS MEMBRANE)
(MOUTH)

POLAND / High Molecular Chemistry.

Abs Jour : Ref Zhur - Khimiya No 5, 1959, No. 18048

Author : Lasocki, Z.; Kret, Z.
Inst : Not given
Title : Hydrolysis and Condensation of the Bi-functional Monomers of Silicones. II. Partial Hydrolysis of Methylethyl-dimetoxysilane.

Orig Pub : Roczn. chem. 1958, 32, No 3, 657-659

Abstract: : Partial hydrolysis of methylethyldimetoxysilane with water solution of methanol and in the presence of NaOH catalyst was conducted. Properties of the obtained products are described. For Part I see Ref Zhur - Khimiya 1958, 83995.

Card 1/1
1291 - B
1015 - C
1226 D, E, F, G
1252
1228 - H,I

E N D

I - 3

KOVES, Elemer; ROMWALTER, Alfred; KRETAI, Jozsef, mernok; KARPATI, Gyula

Sandor Deniflee, iron metallurgical engineer, technical director of the Csepel Metal Works, 1890-1959; obituary. Koh lap 93 no.2:66-67 F '60.

1. Femkohaszati Szakosztaly elnoke (for Romwalter). 2. Csepeli Femmu (for Kretai). 3. Csepeli Femmu szalaghengeresze (for Karpati).

MAGSAY, Jozsef; AKOS, Frigyes; KELTAI, Jozsef

Society news. Kok. Lap 97 no.3 518 N '64.

1. Editor-in-Chief "Kohaszati Lapok" (for Akos).

SOV/62-58-8-3/22

AUTHORS: Rubinshteyn, A. M., Akim[illegible], V. M., Kretalova, L. D.

TITLE: The Properties and the Structure of $NiO-Al_2O_3$-Catalysts (Svoystva i struktura $NiO\ Al_2O_3$ katalizatorov) Note 2: The Radiographic Investigation of the Influence of the Interaction of the Components and of the Conditions of Thermal Treatment on the Phase Composition and Crystalline Structure (Soobshcheniye 2. Rentgenograficheskoye izucheniye vliyaniya vzaimodeystviya komponentov i usloviy termicheskoy obrabotki na fazovyy sostav i kristallicheskuyu strukturu)

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye khimicheskikh nauk, 1958, Nr 8, pp. 929-936 (USSR)

ABSTRACT: The investigation of the activity and effective selectivity in the reaction of the decomposition of i-C_3H_7OH $NiO-Al_2O_3$-catalysts described in the previous paper (Ref 1) furnished the proof of the interaction of the components in solid $NiO-Al_2O_3$-catalysts. Therefore it was assumed that they exhibit a phase structure. This assumption needed, however,

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The Properties and the Structure of $NiO-Al_2O_3$-Catalysts. Note 2: The Radiographic Investigation of the Influence of the Interaction of the Components and of the Conditions of Thermal Treatment on the Phase Composition and Crystalline Structure

checking and proving by means of physical methods of investigation. Especially the detailed radiographic investigation of the $NiO-Al_2O_3$-catalysts could remove the deviation of the results (preliminary work of the authors and investigations carried out by Milligan and Merten (Ref 2), and Milligan and Richardson (Ref 3)). The first important result obtained from this work was that the authors found that among the catalysts investigated no amorphous ones were detected. Thus, the data supplied by Milligan and Merten could not be disproved in any way. They also found that the X-ray structural measurements showed the crystalline structure of the commonly precipitated catalysts (pH8)$NiO-Al_2O_3$ containing from 0 to 100 molar % of NiO (in contrast to those catalysts described by Milligan and Merten (Ref 2)). It was shown that the conditions of production exert a greater influence on the structure of the catalysts than the quantitative correlation of the components. It was also

The Properties and the Structure of $NiO-Al_2O_3$ Catalysts. Note 2: The Radiographic Investigation of the Influence of the Interaction of the Components and of the Conditions of Thermal Treatment on the Phase Composition and Crystalline Structure

found that catalysts of less than 50 molar % of NiO are monophase and do not have a free NiO. By measuring the parameter of the crystal lattice and of the occurring modifications in the concentration of NiO it was found that these monophase catalysts consist of a spinel solution of $NiAl_2O_4$ (in excess γ-Al_2O_3). The catalytic properties of $NiO-Al_2O_3$ were compared to the data of the phase and structural analyses. It turned out that there exist optimum parameters of the spinel lattice within the range of from 7,90 to 7,95 Å (for the dehydration). There are 1 figure, 3 tables, and 13 references, 9 of which are Soviet.

ASSOCIATION: Institut organicheskoy khimii im. N. D. Zelinskogo Akademii nauk SSSR (Institute of Organic Chemistry imeni N. D. Zelinskiy, AS USSR)

SOV/62-58-8-3/22

The Properties and the Structure of $NiO-Al_2O_3$-Catalysts. Note 2: The Radiographic Investigation of the Influence of the Interaction of the Components and of the Conditions of Thermal Treatment on the Phase Composition and Crystalline Structure

SUBMITTED: March 8, 1957

Card 4/4

Kretalova, L. D.

[illegible]

[illegible]

AUTHORS: Rubinshteyn, A. M., [illegible], K. I., [illegible], V. M., Pribytkova, N. A., Kretalova, L. D.

TITLE: Polymorphism and Catalytic Properties of Al_2O_3

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh nauk, 1960, Nr 1, pp [illegible] (USSR)

ABSTRACT: Polymorphic modifications of Al_2O_3 and their catalytic properties were studied. Preparation of γ-, α-, χ-, κ-, Θ-, δ-Al_2O_3 modifications is given. It was shown that formation of different Al_2O_3 modifications depends not only on the thermal conditions of dehydration, but also on the structure of the [illegible] aluminum hydroxide. The following [illegible] of [illegible] are given:

Card 1/3

ASSOCIATION: N. D. Zelinskiy Institute of Organic Chemistry Academy of Sciences USSR (Institut organicheskoy khimii imeni N. D. Zelinskogo Akademii nauk SSSR)

SUBMITTED: May 5, 1958

Card 3/3

RUBINSHTEYN, A.M.; PRIBYTKOVA, N.A.; AKIMOV, V.M.; KRETALOVA, L.D.; KLYACHKO-GURVICH, A.L.

Effect of alkali metal oxides on the activity, selectivity, and phase composition of binary catalysts based on Al_2O_3. Izv. AN SSSR. Otd.khim.nauk no.9:1552-1558 S '61. (MIRA 14:9)

1. Institut organicheskoy khimii im. N.D.Zelinskogo AN SSSR.
(Alkali metal oxides) (Catalysts)

KRETCHETOV, M.

SKGN-6 corn planter. Nauka i zhizn' 28 no.4:78-79 Ap '61.
(MIRA 14:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mekhanizatsii sel'skogo khozyaystva.
(Planters (Agricultural machinery))

RADOJICIC,Bozidar; KRETIC,Bozidar

Manifestations of agranulocytosis following PAS administration. Contribution to the injurious effect of PAS on the hematopoietic system. Srpski arh. celok. lek. 87 no.10:922-927 O '59.

1. Interna klinika Vojno-medicinske akademije u Beogradu,Nacelnik: puk. prof. dr Milan Arsenijevic.
(AGRANULOCYTOSIS etiol.)
(PARAAMINOSALICYLIC ACID eff. inj.)

KRSTIC, M.

(5)

Nonspecific osteomyelitis in childhood. B Kovacević and M Krstic (Wien. med Wschr., 1953, 103, 516–518).—A review with illustrative case-reports and 7 references W. K. Burt.

KRSTIC, Miroslav, dr.

Postoperative complications following gastrectomy for gastroduodenal ulcer. Med.-arh., Sarajevo 8 no.2:37-47 Mar-Apr 54.

1. Hirurska klinika Medicinskog fakulteta u Sarajevu, sef. prof. dr. B.Kovacevic.
(PEPTIC ULCER, surg.
gastrectomy, partial, postop. compl.)

KRETIC, [redacted]

Contribution to the problem of traumatic epilepsy; case reports.
Med. glasn. 8 no.11-12:448-450 Nov-Dec 54.

1. Hirurska klinika Medicinskog fakulteta u Sarajevu (sef prof. dr. B.Kovacevic)
(EPILEPSY
traum.)

KRETIC, MIROSLAV

MIROSLAV, Kretic, Dr.

Historical data on the development of thoracic surgery of the respiratory tract. Med. arh., Sarajevo 9 no.2:79-86 March-Apr 55.

(RESPIRATORY TRACT, surg.
thoracic, hist. (Ser))
(THORAX, surg.
in resp. tract dis., hist. (Ser))
(HISTORY, MEDICAL,
thoracic surg. in resp. tract dis., development.
(Ser))

MIROSLAV Kretic, Doc., Dr.

Problems of the pancreatic cysts. Med. arh., Sarajevo 9 no.3: 67-73 May-June 55.

1. Hirurska Klinika Univerziteta u Sarajevu (Sef: Prof. Dr. B. Kovacevic).

(PANCREAS, cysts
caused by abdom. trauma. (Ser))
(ABDOMEN, wds. & inj.
causing pancreatic cyst. (Ser))
(WOUNDS AND INJURIES,
abdomen, causing pancreatic cyst. (Ser))
(CYSTS,
pancreasm caused by abdom. trauma. (Ser))

KRETIC, Miroslav, Doc., dr.

Injurious effects of antibiotic therapy in surgery. Med. arch., Sarajevo 9 no.4:55-61 July-Aug 55.

1. Iz Hirurske klinike Med. fakulteta u Sarajevu. (Sef prof. dr. B. Kovacevic).

(ANTIBIOTICS, ther. use,
in surg., inj. eff. (Ser))
(SURGERY, OPERATIVE,
use of antibiotics, inj. eff. (Ser))

KRETIC, Miroslav, Doc., dr.

Operative risks in struma of Basedow's type. Med. arh., Sarajevo 9 no.6:43-47 Nov-Dec 55.

1. (z Hirurske klinike Med. fakulteta, Sef prof. dr. Blagoje Kovacevic).
(GOITER,
(HYPERTHYROIDISM, surg.
indic for hyperthyroid goiter. (Ser))

KRETIC, Miroslav, Doc., dr.

Interpretation of cerebral commotion syndrome in craniocerebral injuries. Med. arh., Sarajevo 10 no.2:23-38 Mar-Apr 56.

1. Iz Hirurske klinike Medic. fakult. Sarajevu (Sef. prof. dr. Blagoje Kovacevic).

(CRANIUM wds. & inf.
craniocerebral caused by trauma & causing concussion, pathophysiol. & ther. (Ser))
(BRAIN, wds. & inj.
same)
(WOUNDS AND INJURIES,
same)

KRETIC, Miroslav, Doc., dr.

Diagnosis and treatment of medulla spinalis. Med. arh., Sarajevo 10 no.3:21-31 May-June 56.

1. Iz Hirurske klinike Medicinskog fakulteta, Sef: prof. dr. Blagoje Kovacevic.
(SPINAL CORD, dis.
diag. & management (Ser))

KRETIC, M.

Causes of late dehiscence of anastomotic sutures in esophageal resection. Acta chir. iugosl. 4 no.3:221-228 1957.

1. Hirurska klinika Medicinskog Fakulteta u Sarajevu (Sef: prof. dr. Blagoje Kovacevic)

(ESOPHAGUS, surg.
resection for cancer with anastomosis to stomach, late rupt. of suture (Ser))

(STOMACH, surg.
anastomosis to esophageal stump after resection for esophageal cancer, late rupt. of sutures (Ser))

(SUTURES,
causes of rupt. of anastomotic suture in resection of esophagus for cancer with anastomosis to stomach (Ser))

KRETIC, Miroslav, Doc., dr.

Modern neurosurgical diagnosis and prognosis of intracranial tumors. Med. arh., Sarajevo 11 no.1:1-40 Jan-Feb 57.

1. Hirurska klinika Medicinskog fakulteta u Sarajevu. Sef: prof. dr. Blagoje Kovacevic.
(BRAIN NEOPLASMS,
intracranial, diag. & progn. (Ser))

KRETIC,Miroslav,doc. d-r

Significance of intracranial hypotension in general practice.
Med. arh.,Sarajevo 12 no.2:23-28 Mr-Ap '59.

1. Hirurska klinika Medicinskog fakulteta u Sarajevu, sef: prof. d-r B. Kovacevic.
(CEREBROSPINAL FLUID)

KRETIC, Miroslav, doc. d-r

Survey of therapy andprognosis in cerebral abscess. Med. arh., Sarajevo 13 no.4:27-39 Jl-Ag '59.

1. Hirurska klinika Medicinskog fakulteta u Sarajevu, sef: prof. d-r Blagoje Kovacevic.
(BRAIN ABSCESS)

KRETIC,Miroslav,doc. d-r

Complications in sub-occipital punctures. Med. arh., Sarajevo 13 no.6:51-55 N-D '59.

1. Kirurska klinika Medicinskog fakulteta u Sarajevu, sef: prof. d-r B. Kovacevic.
(PUNCTURE compl.)
(BRAIN surg.)

KRETIC, M.; BESAROVIC, Z.; KOSAK, O.

Our first results with the application of hibernotherapy in severe and acute cerebrocranial injuries. Acta chir.iugosl. 7(8) no.3: 185-200 '60.

1. Kirurska klinika Medicinskog fakulteta u Sarajevu (v.d.sefa prof. dr F.Lukac)
(BRAIN wds & inj)
(HIBERNATION ARTIFICIAL)

KRETIC, Miroslav, doc. d-r; BOGDANOV, Branislav, d-r

Pathological and clinical contribution to mesenterial cysts. Med.arh., Sarajevo 14 no.3:31-36 My-Je '60.

1. Hirurska klinika Medicinskog fakulteta u Sarajevu (Sef: prof. d-r Blagoje Kovacevic)
(MESENTERY dis)
(CYSTS)

KRETIC, Miroslav, doc. d-r

Specificity of intracranial expansive processes. Med.arh., Sarajevo 14 no.7:33-37 Ja '61.

1. Hirurska klinika Medicinskog fakulteta u Sarajevu (Sef: prof. d-r Blagoje Kovacevic)
(INTRACRANIAL PRESSURE)

KRSTIC, M.; BOGDANOV, B.; RIMSKI, B.

A case of Cysticercus cellulose in the central nervous system.
Med. arh. 15 no.4:1-9 Jl-Ag '61.

1. Hirurska klinika Med. fakulteta u Sarajevu (v. d. sefa: Prof. Feodor Lukac) Institut za patolosku anatomiju (v.d. sefa: Doc. dr A.Nikulin).
(CYSTICERCOSIS case reports) (BRAIN dis)

KRETIC, Vjerocka (Zagreb, Gunduliceva 2)

Labor productivity, an important indicator in the economic and social development of our country. Tesla 9 no.4:2-7 '62.

CENIN, S.A., KRETIMIN, A.A., KAZIMIRSKIY, Ya.M., spets.red.; VASIL'YEVA, G.N., red.; YARGV, E.M., tekhn.red.

[Practices of the Detchino factory in producing dehydrated potatoes] Opyt Detchinskogo zavoda po proizvodstvu sukhogo kartofelia. Moskva, Pishchepromizdat, 1957. 17 p. (MIRA 11:9)
(Potatoes--Drying)

KRETININ, A.A.

New book on vegetable drying technology ("Industrial drying of vegetables and potatoes" by S.A. Genin, V.I. Knizhnik. Reviewed by A.A. Kretinin). Kons.i ov.prom. 12 no.5:42-43 My '57.
(MLRA 10:8)

(Vegetables--Drying)
(Genin, S.A.) (Knizhnik, V.I.)

RUDZITSKIY, A.A.; RYBIN, N.S.; KRETININ, A.A.; CHERNOMORSKIY, G.A., spetsred.

[Automatic control of the process of drying on conveyer driers] Avtomatizatsiia protsessa sushki na konveiernykh sushilkakh. Moskva, Gos.nauchno-issl.in-t nauchn. i tekhn.informatsii, 1959. 9 p. (MIRA 13:6)

(Drying apparatus)

KRETININ, A.A.

Conveyer dryer and the design of its inclined belt. Kons.i ov.prom. 14 no.2:21-22 F '59. (MIRA 12:3)

1. Detchinskiy molochno-ovoshchesushil'nyy zavod.
(Drying apparatus)

38169. KRETININ, G. A.

Nash opyt stroitel'stva purdov i vodoyemov (Lesozashchitnaya stantsiya im. Gor'kogo, Tamb. obl.) Mekhanizatsiya trudoyemkikh i tyazhelykh rabot, 1949, no. 12, s. 31

KRETININ, N. I.

Our experiment in cross-cultivating sugar beets. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1954. 8 p. (Biblioteka obmena opytom peredovikov sel'skogo khoziaistva) (54-43476)

SB220.R9K7

KRETININ, S.A.

USSR/Chemical Technology. Chemical Products and Their Application - Silicates. Glass. Ceramics. Binders. I-9

Abs Jour : Referat Zhur - Khimiya, No 4, 1957, 12512

Author : Kretinin S.A.
Inst : Voronezh University
Title : Investigation of the Effect of Chemical Additives HCl, H_2SO_4, NaOH and K_2CO_3 on SEdimentation of Sand with Clay

Orig Pub : Tr. Voronezhsk. un-ta, 1955, 35, 59-74

Abstract : Using two specimens of sand and a specimen of hydromicaceous clay from Western Kazakhstan, a study was made of the optimal conditions of sedimentation (rate of inflow and turbidity of slurry), and investigations were conducted of changes in filtration coefficient and thickness of the silt film on introduction into the same slurry of K_2CO_3, HCl, H_2SO_4, NaOH and methylene blue (over the range of 0.001 -0.1 N). Most effective are additions of methylene blue (0.0003%), 0.01 N and 0.001 N K_2CO_3 and 0.005 N H_2SO_4.

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KRETININ, S.A.

Study of filtration during the mutual coagulation of sols.
Trudy VGU 57:169-175 '59. (MIRA 13:5)
(Colloids) (Filters and filtration)

L 141-64
ACCESSION NR: AR3006942 EPR/EWP(j)/EPF(c)/EWT(m)/BDS AFFTC/ASD Pc-4/Pc-4/Pr-4 RM/WW/MAY S/0081/63/000/010/0698/0698

SOURCE: RZh. Khimiya, Abs. 10T499

AUTHOR: Mikhant'yev, B. I., Kretinin, S. A., Shatalov, V. P.

TITLE: Study of the properties of divinyl-styrene rubbers filled in the latex stage

CITED SOURCE: Tr. Labor. khimii vy*sokomolekul. soyedeneniy. Voronezhsk. un-t, vy*p. 1, 1962, 162-169

TOPIC TAGS: Divinyl-styrene rubber, latex stage, rubber

TRANSLATION: A study was made of the conditions of filling SKS-30AR with HAF carbon black, channel carbon black, Al sub 2 O sub 3, PN-6 oil, auto scrap-18, and mazut at the latex stage and on rollers. Carbon black dispersions were prepared with a magnetic striction vibrator with a frequency of 25 kilocycles (concentration of carbon black of 15%, vibration time of 20 minutes). With

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the introduction of 0.2-0.5% leucanol the vibration time is lowered to 5-10 minutes. The combination of latex with the dispersion of carbon black and the oil emulsion was also conducted through vibration for 3-5 minutes. The mixture was coagulated by CaCl sub 2 with H sub 2 SO sub 4 or CH sub 3 COOH. The expenditures per ton of commercial rubber with HAF carbon black were: CaCl sub 2 -- 30 kg, CH sub 3 COOH -- 1.9 kg; with channel carbon black; CaCl sub 2 -- 15.6 kg. CH sub 3 COOH -- 8 kg. The product which was obtained was dried at 80-90 degrees with forced ventilation. Upon introducing the carbon black into the latex a more plastic mixture was obtained which yielded stronger and more elastic vulcanized rubbers; the speed of vulcanization was increased. Dispersions with leucanol yielded better rubbers than without it. A basic technological plan for the production of carbon black-butyric rubbers was proposed. A 20% aqueous solution of Al sub 2 O sub 3 was prepared in a ball mill (30 rev/min) for 3 hours at about 20 degrees. The expenditure of CaCl sub 2 for the coagulation of 1 ton of commercial rubber was 47 kg. There was no loss of Al sub 2 O sub 3 during the coagulation of the latex mixture. The introduction of Al sub 2 O sub 3 into the latex produced more plastic mixtures and stronger vulcanized rubbers than when it was introduced on rollers. G. Chasovshchikov

DATE ACQ: 01Jul63 SUB CODE: CH, MA ENCL: 00

Card 2/2

KUZNETSOV, Viktor Vasil'yevich; KASATOCHKIN, V.I., retsenzent; KRETININ, S.A., retsenzent; PALKINA, N.A., retsenzent; KONDRASHKOVA, S.F., red.

[Physical and colloid chemistry] Fizicheskaia i kolloidnaia khimiia. Moskva, Vysshaia shkola, 1964. 385 p. (MIRA 17:5)

L 37023-65 EWT(m)/EPF(a)/EWP(j)/T Pa-4/Pr-4 RM
ACCESSION NR: AR5003002 S/0081/64/000/019/H083/H083

22
21
B

SOURCE: Ref. zh. Khimiya, Abs. 19Zh274

AUTHOR: Nikhant'yev, B. I.; Kretinin, S. A.; Shirokov, Yu. P.

TITLE: Synthesis and polymerization of some organotitanium compounds with unsaturated substituents

CITED SOURCE: Tr. Labor. khimii vysokomolekul. soyedineniy. Voronezhsk. un-t, vyp. 2, 1963, 47-49

TOPIC TAGS: heteroorganic compound, organotitanium compound, titanium polymer, butadiene polymer, isoprene polymer, titanium polyolefin, titanium tetrachloride, alkylene orthotitanate, orthophosphate initiator, thermal polymerization

TRANSLATION: The α-oxide of butadiene, boiling point 66-68C, $n^{20}D$ 1.4160, and the α-oxide of isoprene, boiling point 78-80C, $n^{20}D$ 1.4140, were obtained by the usual methods. By adding CH_3OH to these compounds in the presence of $BF_3 \cdot O(C_2H_5)_2$ the authors then obtained 2-methoxybuten-3-ol-1, boiling point 141-143C, $n^{20}D$ 1.4290, and 2-methoxy-2-methylbuten-3-ol-1, boiling point 75-77C/50 mm, $n^{20}D$ 1.4385. In an atmosphere of N_2, 3.5 g of $TiCl_4$, boiling point 136C, were gradually

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ACCESSION NR: AR5003002

added to 150 ml of absolute benzene at 0C, the mixture was saturated with dry NH_3, and the suspension of $TiCl_4 \cdot 8NH_3$ which was formed was gradually treated with a 1.5-fold excess of 2-methoxybuten-3-ol-1; after 5 hours at ≤10C, the filtrate was evaporated off at 450 mm and (2-methoxybuten-3)-orthotitanate, $C_{20}H_{36}O_8Ti$ (I), boiling point 162-163C/2-2.5 mm, $n^{20}D$ 1.5050, d_4^{20} 1.0895, was obtained from the residue in 52% yield. Analogously, (2-methoxy-2-methylbuten-3)-orthotitanate, $C_{21}H_{38}O_8Ti$ (II), boiling point 152-154C/2-2.5 mm, $n^{20}D$ 1.5260, $d_4^{20}D$ 1.1190, was obtained from 2-methoxy-2-methylbuten-3-ol-1 in 35% yield. At 20-25C with orthophosphoric acid as an initiator, the authors obtained a polymer from I having a melting point of 240-250C and a polymer from II having a melting point of 250-255C. The thermal polymerization of I and II (at 150-180C for 2 hours) yielded brittle films with low adhesion to glass and softening points of 375 and 360-380C, respectively. The thermal polymerization of I and II at 100C for 8 hours was unsuccessful; $FeCl_3$, BF_3Na and $(C_6H_5CO)_2O_2$ were found to be ineffective as initiators. F. Velichko.

SUB CODE: OC ENCL: 00

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L 37019-65 EWT(m)/EPF(c)/EPR/EWP(j) Pc-4/Pr-4/Ps-4 WW/RM

ACCESSION NR: AR5003012 S/0081/64/000/020/S082/S082

SOURCE: Ref. zh. Khimiya, Abs. 20S511

31
B

AUTHOR: Mikhant'yev, B. I.; Kretinin, S. A.; Gostev, M. M.; Shatalov, V. P.; Markina, E. I.; Senyuk, Ye. P.

TITLE: Butadiene-styrene rubbers filled with carbon black and oil and produced by high-temperature polymerization

CITED SOURCE: Tr. Labor. khimii vysokomolekul. soyedineniy. Voronezhsk. un-t, vyp. 2, 1963, 103-108

TOPIC TAGS: synthetic rubber, butadiene rubber, styrene rubber, carbon black filler, gas black filler, channel black filler, oil filled rubber, high temperature polymerization, rubber mechanical property, rubber emulsifier, synthetic fatty acid, colophony, latex coagulation

TRANSLATION: The authors studied the properties of butadiene-styrene rubbers of the SKS-30 type, produced by high-temperature polymerization with the addition of 17.6-50.0 parts by weight PN-6 oil and 50.0 parts by weight gas black, channel black or HAF black to latex stage. The following combinations were tested as

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ACCESSION NR: AR5003012

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emulsifying agents: Nekal and the Na soaps of synthetic fatty acids; Nekal and the K soaps of synthetic fatty acids; the K soap of hydrogenated colophony and the K soaps of synthetic fatty acids. The 20% carbon black dispersions were prepared by grinding in a ball mill for 24 hrs. in the presence of 4-6 parts by weight leukanol and 0.6 parts by weight NaOH (in relation to the carbon black). The oil emulsion was of commercial origin. During the coagulation of mixtures from Nekal latex, the best results were produced by $CaCl_2$ and CH_3COOH; in the case of latex produced with the soaps of synthetic fatty acids, the best results were produced by a mixture of $CaCl_2$, NaCl and CH_3COOH; in the case of colophony latex, NaCl and H_2SO_4 gave the best results. During deformation of the initial rubber with 4500 g, raw mixtures of rubber filled with carbon black and oil (SMK rubber) had a somewhat greater plasticity and less reducibility than when carbon black was added to oil-filled rubber on the rollers. The strength of the SMK vulcanates was somewhat lower, however. The method of introducing the carbon black had no significant effect on the properties of rubber mixtures and vulcanates in soft rubber. The properties of rubber do depend, however, on the method of coagulation. The instantaneous (single-stage) coagulation of SMK rubber resulted in somewhat more rigid mixtures with increased strength and decreased relative elongation. A. Shvarts.

SUB CODE: MT ENCL: 00

Card 2/2

L 22029-66 EWT(m)/EWP(1)/T GS/RM
ACC NR: AT6005937 (A) SOURCE CODE: UR/0000/63/000/000/0047/0049

AUTHORS: Mikhant'yev, B. I. ; Kretinin, S. A.; Shirokov, Yu. P.

ORG: Laboratory for the Chemistry of High-Molecular-Weight Compounds, Voronezh State University (Laboratoriya khimii vysokomolekulyarnykh soyedineniy Voronezhskogo gosudarstvennogo universiteta)

TITLE: Synthesis and polymerization of certain titanoorganic compounds containing unsaturated radicals

SOURCE: Voronezh. Universitet. Laboratoriya khimii vysokomolekulyarnykh soyedineniy. Trudy, no. 2, 1963. Monomery, khimiya i tekhnologiya SK (Monomers, chemistry, and technology of synthetic rubber), 47-49

TOPIC TAGS: organometallic compound, organotitanium compound, titanium compound, organic synthetic process, titanium, polymerization

ABSTRACT: The organotitanic compounds

$(CH_2=CH-\underset{\displaystyle OCH_3}{\underset{|}{CH}}-CH_2O)_4Ti$ and $(CH_2=CH-\underset{\displaystyle OCH_3}{\underset{|}{\overset{\displaystyle CH_3}{\overset{|}{C}}}}-CH_2O)_4Ti$

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were synthesized to extend the work of S. V. Nogina, R. Kh. Freydlina, and A. N. Nesmeyanov (Izv. AN SSSR, OKhN, 3, 327, 1950). The compounds were synthesized by reacting $TiCl_4 \cdot 8NH_3$ in dry benzene with 2-methoxybuten-3-ol-1 and with 2-methoxy-2 methylbuten-3-ol-1 respectively. The intermediate products were synthesized after the method of A. A. Petrov (ZhOKh, 11, 991, 1941; ZhOKh, 16, 1625, 1946) and of A. N. Pudovnik and S. G. Denislamova (ZhOKh, 27, 2363, 1957). Reaction yields and the characteristic physical constants for the synthesized compounds are tabulated. The polymerization of the synthesized compounds was studied. Only thermopolymerization and polymerization induced by orthophosphoric acid yielded polymers. Metallic sodium, BF_3, $FeCl_3$, and benzoyl peroxide did not induce polymerization. The polymers obtained were ruby-red in color, brittle, and showed a poor adhesion to glass. Orig. art. has: 2 formulas.

SUB CODE: 07/ SUBM DATE: none/ ORIG REF: 007 OTH REF: 001

Card 2/2 dda

L 40962-66 EWT(m)/EWP(j) IJP(c) RM/JWD

ACC NR: AR6016972 (A) SOURCE CODE: UR/0081/65/000/024/S077/S078

AUTHOR: Mikhant'yev, B. I.; Gostev, M. M.; Kretinin, S. A. 42 B

TITLE: Carbon black-oil filled butadiene styrene rubber of low temperature polymerization obtained in a system with a Trilon Rongalite activating group

SOURCE: Ref. zh. Khimiya, Abs. 24S547

REF SOURCE: Tr. Labor. khimii vysokomolekul. soyedineniy. Voronezhsk. un-t, vyp. 3, 1964, 186-190

TOPIC TAGS: butadiene styrene rubber, filler, carbon black, polymerization catalyst, elasticity, tensile strength

ABSTRACT: The possibility of using channel and gas furnace blacks in reinforcement in SKS-30 ARK latex prepared with the Trilon Rongalite activating group was investigated. The carbon blacks were introduced into the latex as 20% dispersions stabilized with K-soaps of hydrated or disproportionated rosin. The following proportions of stabilizer were necessary to obtain stabilized dispersions: for channel black 4-5 parts by weight, for furnace black 3.5 parts by weight, for their mixtures (1:1) 5-6 parts by weight. Introduction of both carbon blacks and their

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L 40962-66

ACC NR: AR6016972

mixtures to the latex gives vulcanizates with lower modulus and greater elasticity. The strength of vulcanizates with furnace black is higher and with channel black it is lower than when the carbon black is added on the rolls. M. Ayzinson. [Translation of abstract].

SUB CODE: 07, 11, 10

Card 2/2 mlp

STEPCHKOV, K.A.; KRETININA, L.V.; ADAMSON, N.F., otv. za vyp.; BERENSHTEYN, N.Ye., otv. za vyp.; MANVELOVA, Ye.S., tekhn. red.

[Production of potato granules] Proizvodstvo kartofel'noi krupki. Moskva, TSintipishcheprom, 1963. 24 p. (MIRA 17:1)

(Potatoes, Drying)

KRETININA, T.I., vrach

Significance of formal gelification of the blood serum in liver diseases. Zdrav. Kazakh. 18 no. 2:49-52 '58. (MIRA 13:8)

1. Iz Alma-Atinskoy gorodskoy ob"yedinennoy klinicheskoy bol'nitsy.
(LIVER--DISEASES) (SERUM)

KRETININA, Yu.S.; PERESLEGIN, Yu.A.

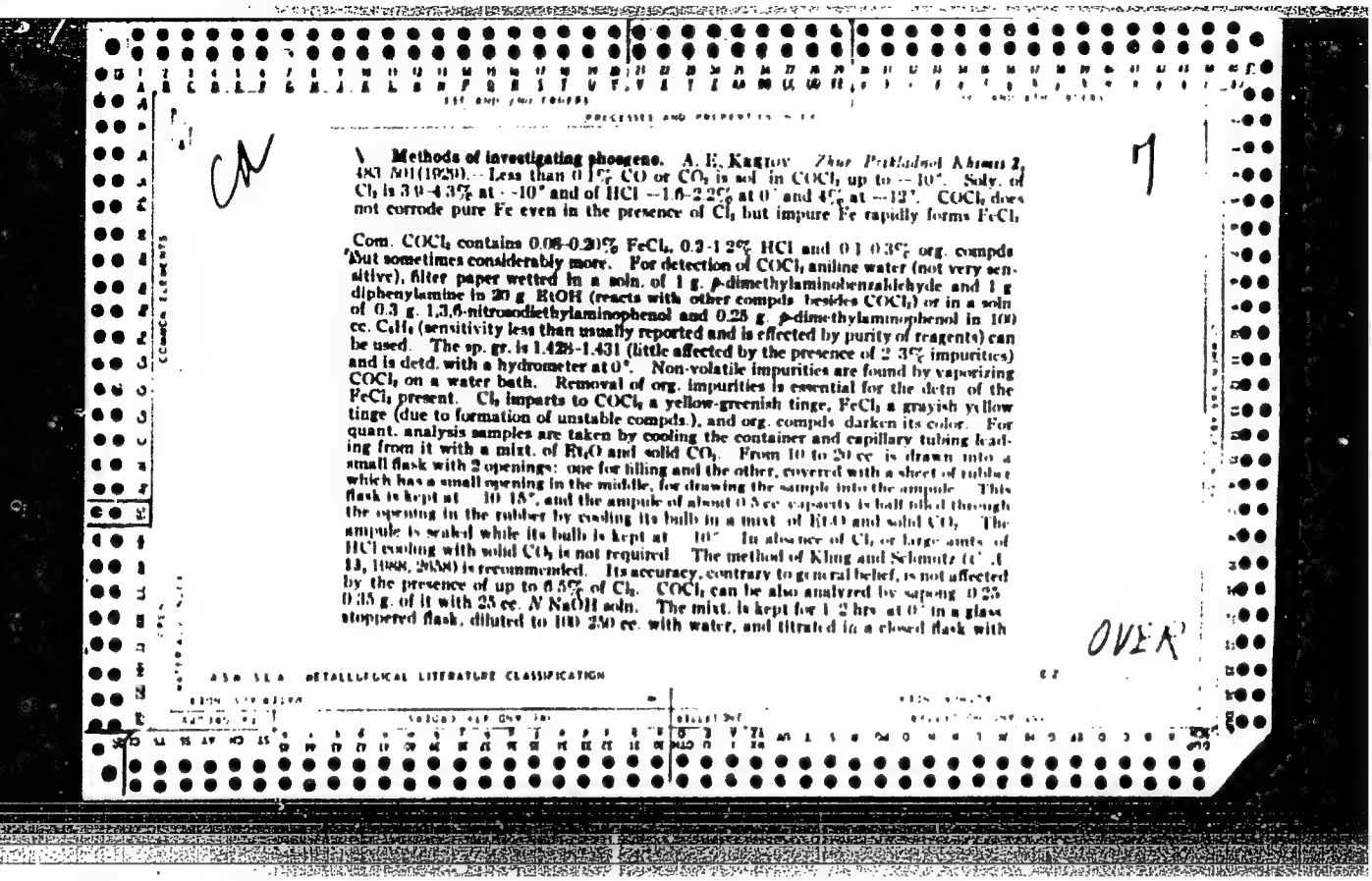
Semigraphical method of calculating long-distance power transmission lines with consideration of the loading effect. Obshch. energ. no.3:34-38 '60. (MIRA 14:3)
(Electric power distribution)

Kretinsky, B.

A mixer for foamed concrete p. 156

(Stavivo. Vol. 35, no. 3, Mar. 1957. Praha, Czechoslovakia)

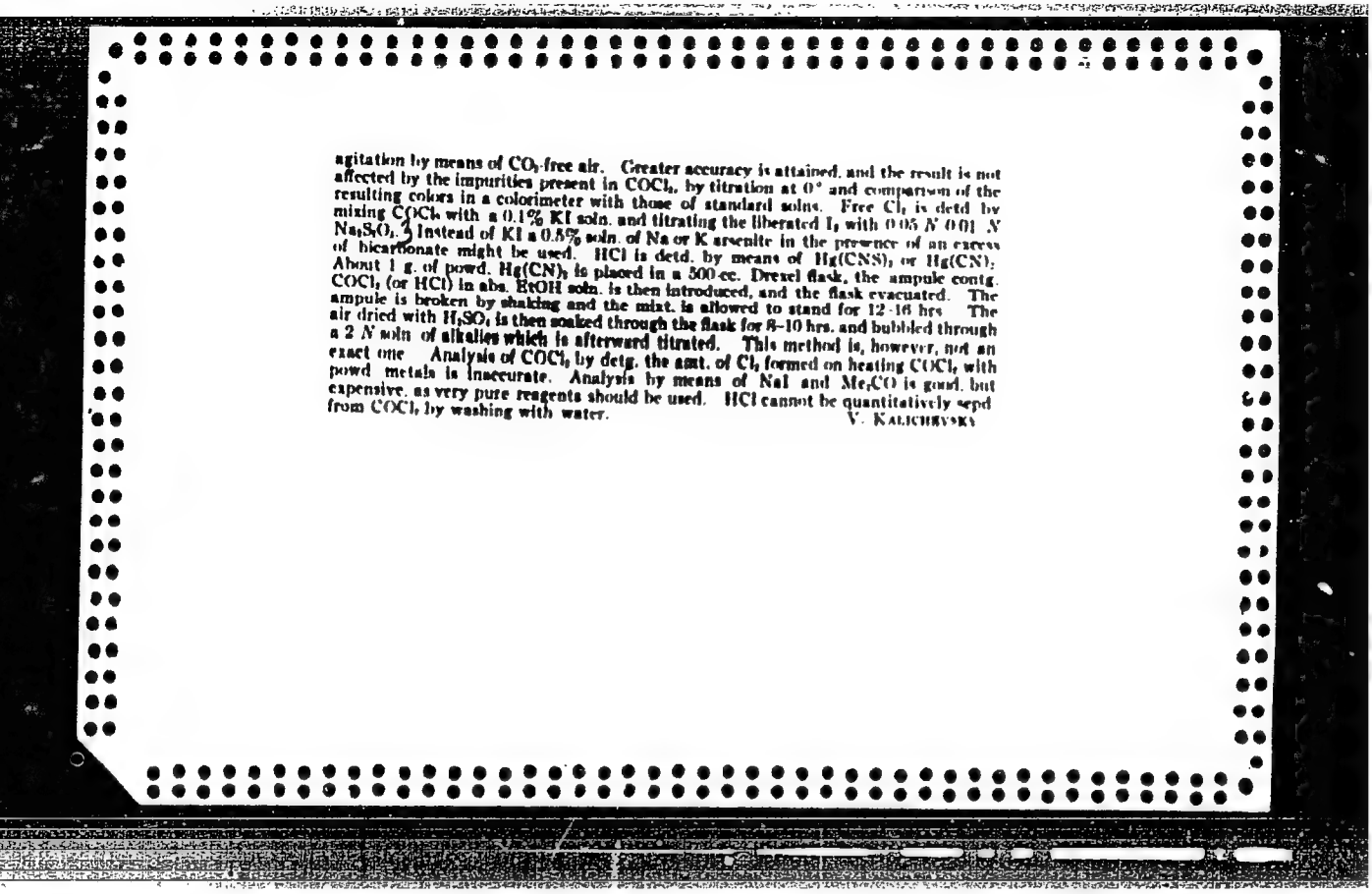
SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.



Methods of investigating phosgene. A. E. Kagnov. *Zhur. Prikladnoi Khimii* 2, 483-501 (1929).—Less than 0.1% CO or CO_2 is sol. in $COCl_2$ up to −10°. Solv. of Cl_2 is 3.9–4.3% at −10° and of HCl −1.6–2.2% at 0° and 4% at −12°. $COCl_2$ does not corrode pure Fe even in the presence of Cl_2 but impure Fe rapidly forms $FeCl_3$.

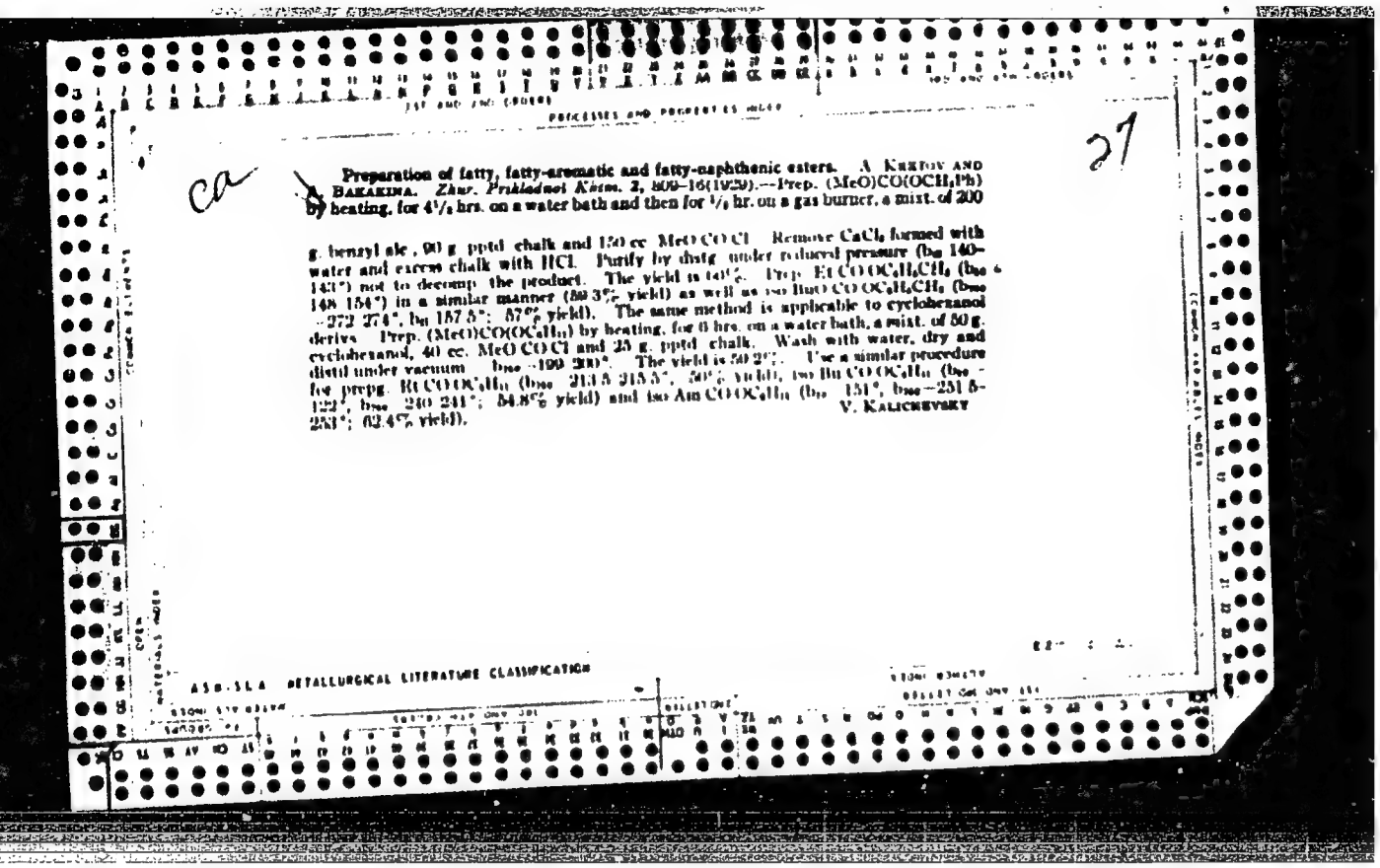
Com. $COCl_2$ contains 0.08–0.20% $FeCl_3$, 0.3–1.2% HCl and 0.1–0.3% org. compds. but sometimes considerably more. For detection of $COCl_2$ aniline water (not very sensitive), filter paper wetted in a soln. of 1 g. *p*-dimethylaminobenzaldehyde and 1 g. diphenylamine in 20 g. EtOH (reacts with other compds. besides $COCl_2$) or in a soln. of 0.3 g. 1,3,6-nitrosodiethylaminophenol and 0.25 g. *p*-dimethylaminophenol in 100 cc. CaH_2 (sensitivity less than usually reported and is effected by purity of reagents) can be used. The sp. gr. is 1.428–1.431 (little affected by the presence of 2–3% impurities) and is detd. with a hydrometer at 0°. Non-volatile impurities are found by vaporizing $COCl_2$ on a water bath. Removal of org. impurities is essential for the detn. of the $FeCl_3$ present. Cl_2 imparts to $COCl_2$ a yellow-greenish tinge, $FeCl_3$ a grayish yellow tinge (due to formation of unstable compds.), and org. compds. darken its color. For quant. analysis samples are taken by cooling the container and capillary tubing leading from it with a mixt. of Et_2O and solid CO_2. From 10 to 20 cc. is drawn into a small flask with 2 openings: one for filling and the other, covered with a sheet of rubber which has a small opening in the middle, for drawing the sample into the ampule. This flask is kept at −10–15°, and the ampule of about 0.5 cc. capacity is half filled through the opening in the rubber by cooling its bulb in a mixt. of EtOH and solid CO_2. The ampule is sealed while its bulb is kept at −10°. In absence of Cl_2 or large amts. of HCl cooling with solid CO_2 is not required. The method of Klug and Schmutz (*C. A.* 13, 1088, 2038) is recommended. Its accuracy, contrary to general belief, is not affected by the presence of up to 6.5% of Cl_2. $COCl_2$ can be also analyzed by sapong. 0.25–0.35 g. of it with 25 cc. *N* NaOH soln. The mixt. is kept for 1–2 hrs. at 0° in a glass-stoppered flask, diluted to 100–250 cc. with water, and titrated in a closed flask with

OVER



agitation by means of CO_2-free air. Greater accuracy is attained, and the result is not affected by the impurities present in $COCl_2$, by titration at 0° and comparison of the resulting colors in a colorimeter with those of standard solns. Free Cl_2 is detd by mixing $COCl_2$ with a 0.1% KI soln. and titrating the liberated I_2 with 0.05 *N* 0.01 *N* $Na_2S_2O_3$. Instead of KI a 0.8% soln. of Na or K arsenite in the presence of an excess of bicarbonate might be used. HCl is detd. by means of $Hg(CNS)_2$ or $Hg(CN)_2$. About 1 g. of powd. $Hg(CN)_2$ is placed in a 500-cc. Drexel flask, the ampule contg. $COCl_2$ (or HCl) in abs. EtOH soln. is then introduced, and the flask evacuated. The ampule is broken by shaking and the mixt. is allowed to stand for 12–16 hrs. The air dried with H_2SO_4 is then soaked through the flask for 8–10 hrs. and bubbled through a 2 *N* soln. of alkalies which is afterward titrated. This method is, however, not an exact one. Analysis of $COCl_2$ by detg. the amt. of Cl_2 formed on heating $COCl_2$ with powd. metals is inaccurate. Analysis by means of NaI and Me_2CO is good, but expensive, as very pure reagents should be used. HCl cannot be quantitatively sepd. from $COCl_2$ by washing with water.

V. KALICHEVSKY



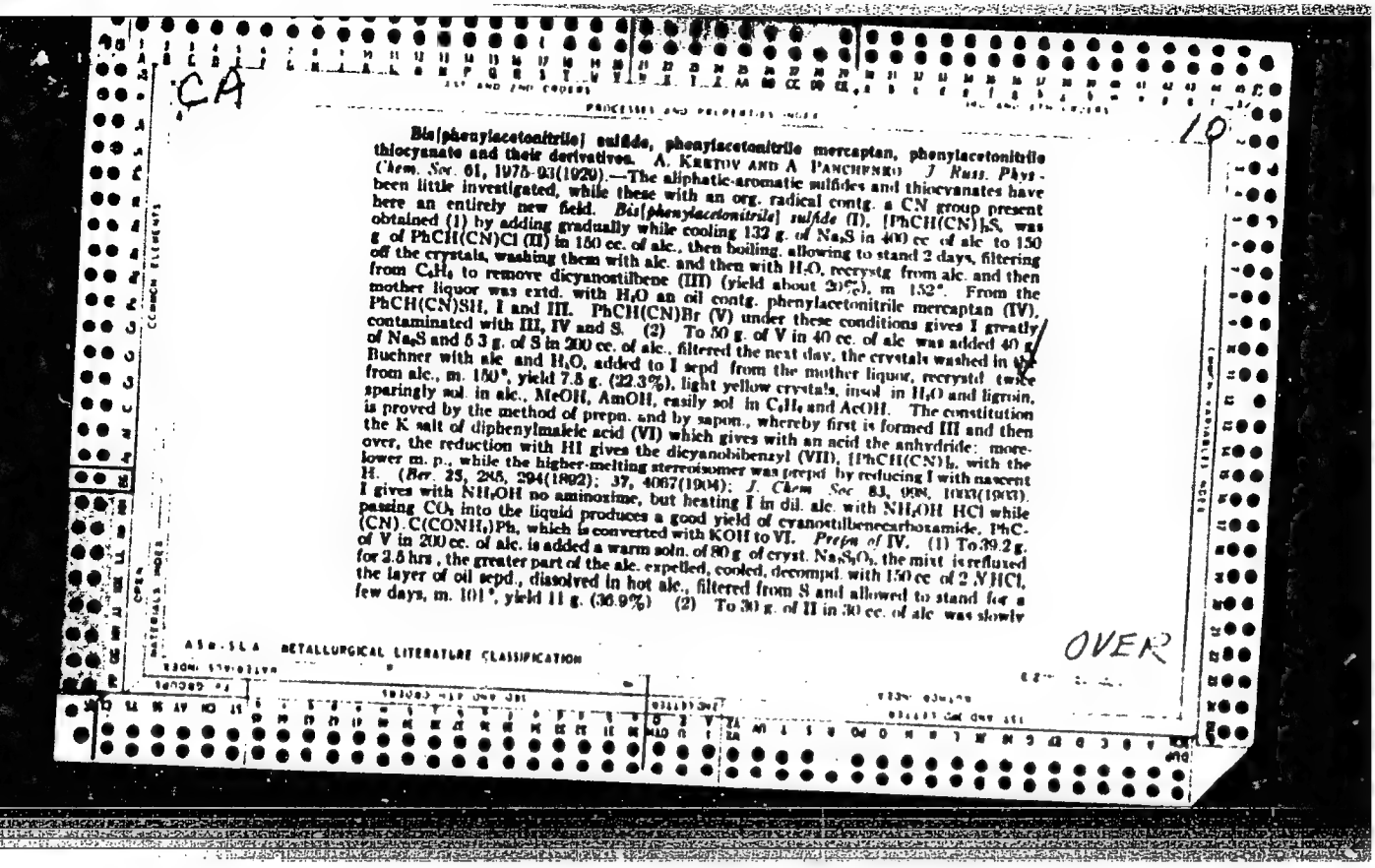
ca

27

Preparation of fatty, fatty-aromatic and fatty-naphthenic esters. A. KHRYOV AND BAKAKINA. *Zhur. Prikladnoi Khim.* 2, 809–16(1929).—Prep. (MeO)CO(OCH$_2$Ph) by heating, for 4½ hrs. on a water bath and then for ½ hr. on a gas burner, a mixt. of 200 g. benzyl alc., 90 g. ppted chalk and 120 cc. MeOCOCl. Remove CaCl$_2$ formed with water and excess chalk with HCl. Purify by distg. under reduced pressure (bp 140–143°) not to decomp. the product. The yield is 60%. Prep. EtCO(OC$_6$H$_4$CH$_3$) (bp 148–154°) in a similar manner (80.3% yield) as well as iso BuCO(OC$_6$H$_4$CH$_3$) (bp −272–274°, bp 187.5°; 87% yield). The same method is applicable to cyclohexanol derivs. Prep. (MeO)CO(OC$_6$H$_{11}$) by heating, for 6 hrs. on a water bath, a mixt. of 50 g. cyclohexanol, 40 cc. MeOCOCl and 25 g. ppted chalk. Wash with water, dry and distil under vacuum, bp −190–200°. The yield is 50.2%. Use a similar procedure for prepg. EtCO(OC$_6$H$_{11}$) (bp 213.5–215.5°, 50% yield), iso BuCO(OC$_6$H$_{11}$) (bp −122°, bp 240–241°; 84.8% yield) and iso AmCO(OC$_6$H$_{11}$) (bp 151°, bp 251.5–253°; 62.4% yield).

V. KALICHEVSKY

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

10

Bis[phenylacetonitrile] sulfide, phenylacetonitrile mercaptan, phenylacetonitrile thiocyanate and their derivatives. A. KRETOV AND A PANCHENKO *J. Russ. Phys-Chem. Soc.* 61, 1975-93(1929).—The aliphatic-aromatic sulfides and thiocyanates have been little investigated, while these with an org. radical contg. a CN group present here an entirely new field. *Bis[phenylacetonitrile] sulfide* (I), $[PhCH(CN)]_2S$, was obtained (1) by adding gradually while cooling 132 g. of Na_2S in 400 cc. of alc. to 150 g. of PhCH(CN)Cl (II) in 150 cc. of alc., then boiling, allowing to stand 2 days, filtering off the crystals, washing them with alc. and then with H_2O, recrystg. from alc. and then from C_6H_6 to remove dicyanostilbene (III) (yield about 20%), m. 152°. From the mother liquor was extd. with H_2O an oil contg. phenylacetonitrile mercaptan (IV), PhCH(CN)SH, I and III. PhCH(CN)Br (V) under these conditions gives I greatly contaminated with III, IV and S. (2) To 50 g. of V in 40 cc. of alc. was added 40 g. of Na_2S and 5.3 g. of S in 200 cc. of alc., filtered the next day, the crystals washed in a Buchner with alc. and H_2O, added to I sepd. from the mother liquor, recrystd. twice from alc., m. 150°, yield 7.8 g. (22.3%), light yellow crystals, insol. in H_2O and ligroin, sparingly sol. in alc., MeOH, AmOH, easily sol. in C_6H_6 and AcOH. The constitution is proved by the method of prepn. and by sapon., whereby first is formed III and then the K salt of diphenylmaleic acid (VI) which gives with an acid the anhydride; moreover, the reduction with HI gives the dicyanobibenzyl (VII), $[PhCH(CN)]_2$, with the lower m. p., while the higher-melting stereoisomer was prepd. by reducing I with nascent H. (*Ber.* 25, 285, 294(1892); 37, 4067(1904); *J. Chem. Soc.* 83, 998, 1003(1903). I gives with NH_2OH no aminoxime, but heating I in dil. alc. with NH_2OH HCl while passing CO_2 into the liquid produces a good yield of cyanostilbenecarboxamide, PhC(CN):C($CONH_2$)Ph, which is converted with KOH to VI. *Prepn. of* IV. (1) To 39.2 g. of V in 200 cc. of alc. is added a warm soln. of 80 g. of cryst. $Na_2S_2O_3$, the mixt. is refluxed for 2.5 hrs., the greater part of the alc. expelled, cooled, decompd. with 150 cc. of 2 *N* HCl, the layer of oil sepd., dissolved in hot alc., filtered from S and allowed to stand for a few days, m. 101°, yield 11 g. (36.9%) (2) To 30 g. of II in 30 cc. of alc. was slowly

A50-51A METALLURGICAL LITERATURE CLASSIFICATION

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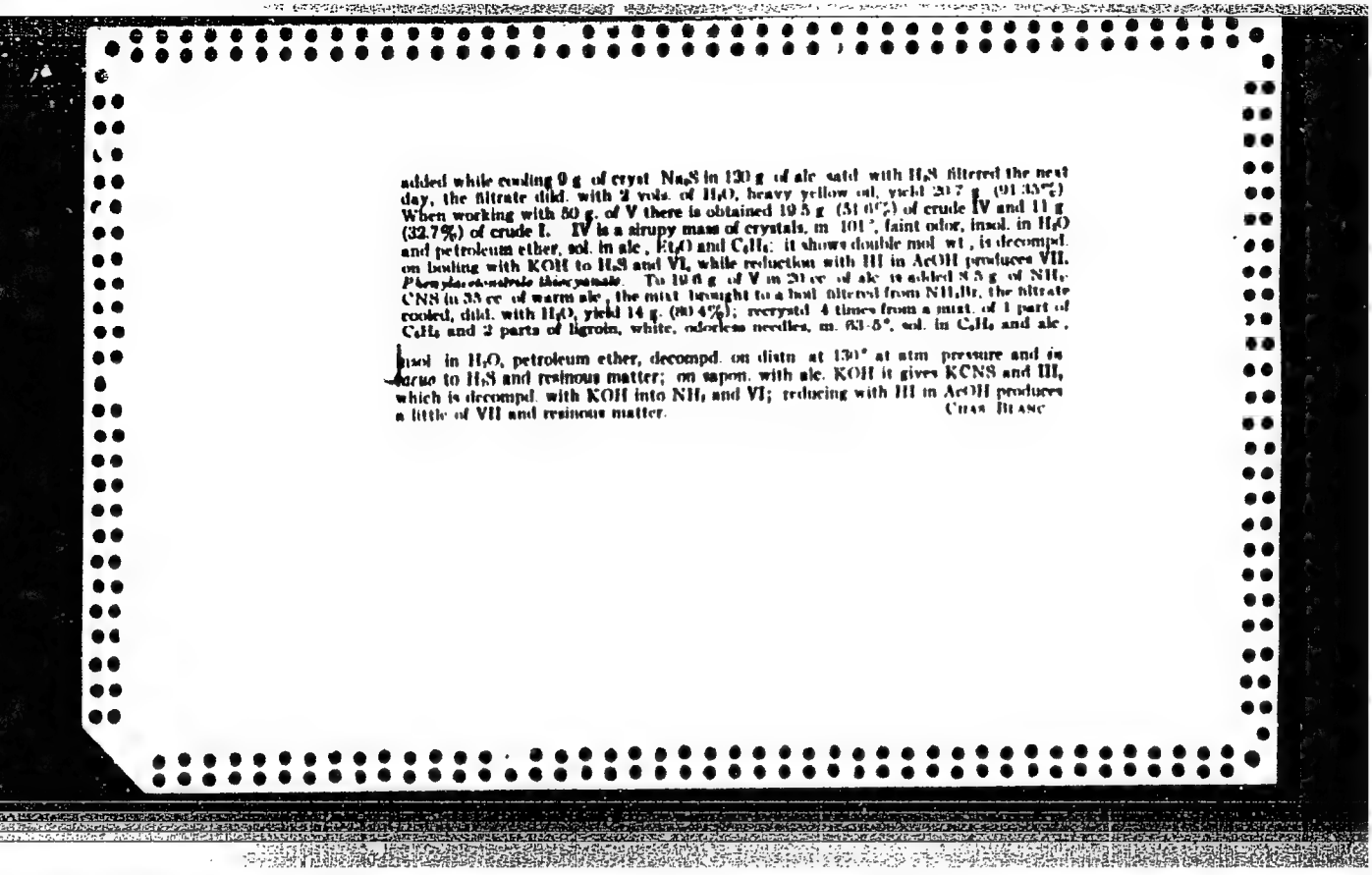
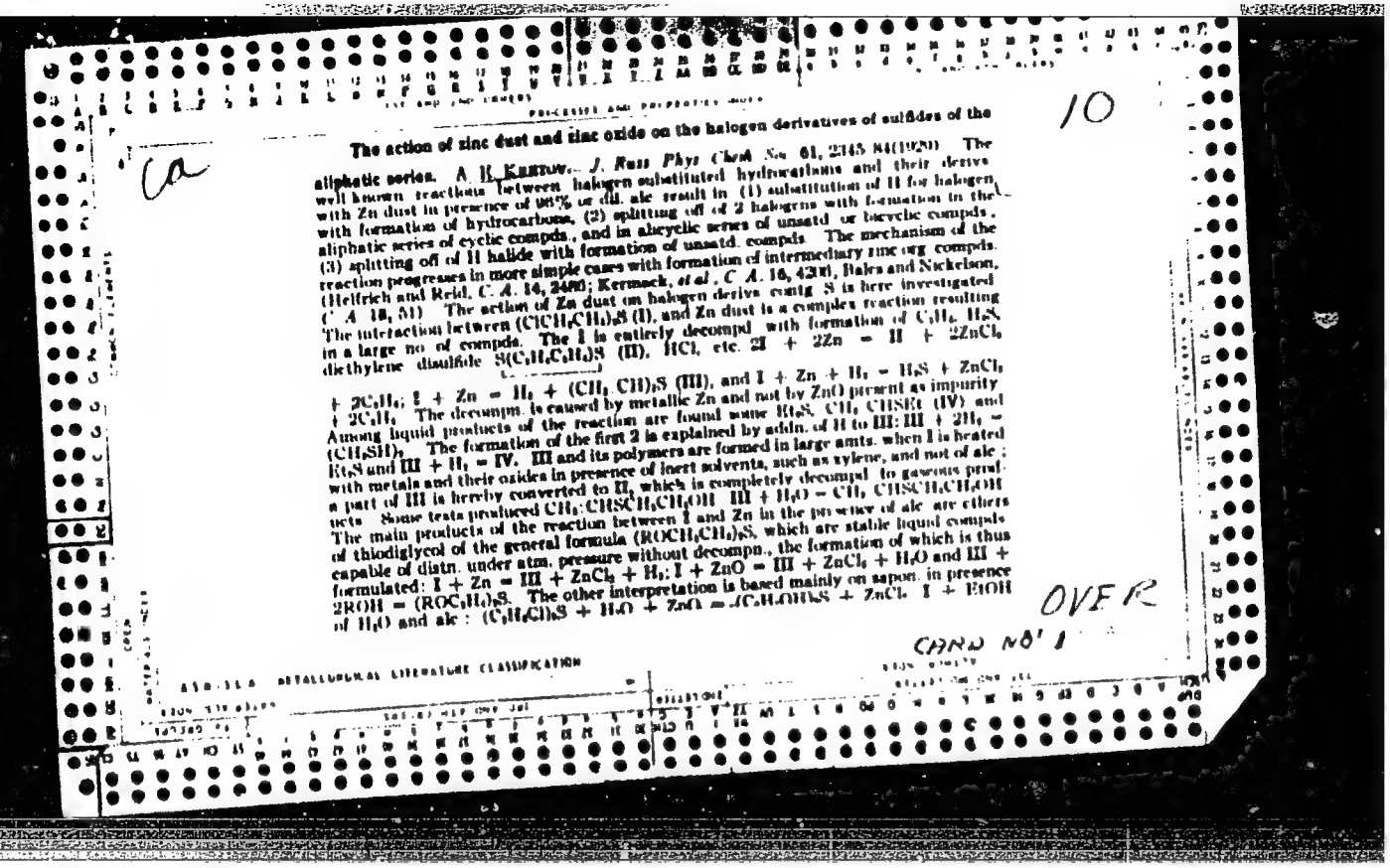


added while cooling 9 g. of cryst. Na_2S in 120 g. of alc. satd. with H_2S, filtered the next day, the filtrate dild. with 2 vols. of H_2O, heavy yellow oil, yield 20.7 g. (91.35%). When working with 80 g. of V there is obtained 19.5 g. (51.6%) of crude IV and 11 g. (32.7%) of crude I. IV is a sirupy mass of crystals, m. 101°, faint odor, insol. in H_2O and petroleum ether, sol. in alc., Et_2O and C_6H_6; it shows double mol. wt., is decompd. on boiling with KOH to H_2S and VI, while reduction with HI in AcOH produces VII. *Phenylthiocarbimide thiocyanate.* To 19.6 g. of V in 20 cc. of alc. is added 8.5 g. of NH_4CNS in 35 cc. of warm alc., the mixt. brought to a boil, filtered from NH_4Br, the filtrate cooled, dild. with H_2O, yield 14 g. (80.4%); recrystd. 4 times from a mixt. of 1 part of C_6H_6 and 2 parts of ligroin, white, odorless needles, m. 63–5°, sol. in C_6H_6 and alc., insol. in H_2O, petroleum ether, decompd. on distn. at 130° at atm. pressure and in vacuo to H_2S and resinous matter; on sapon. with alc. KOH it gives KCNS and III, which is decompd. with KOH into NH_3 and VI; reducing with HI in AcOH produces a little of VII and resinous matter.

CHAS. BLANC



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Ca

The action of zinc dust and zinc oxide on the halogen derivatives of sulfides of the aliphatic series. A. E. Kretov. *J. Russ. Phys. Chem. Soc.* 61, 2145-84(1929). The well known reactions between halogen substituted hydrocarbons and their derivs with Zn dust in presence of H$_2$O or dil. alc. result in (1) substitution of H for halogen, with formation of hydrocarbons, (2) splitting off of 2 halogens with formation in the aliphatic series of cyclic compds., and in alicyclic series of unsatd. or bicyclic compds., (3) splitting off of H halide with formation of unsatd. compds. The mechanism of the reaction progresses in more simple cases with formation of intermediary zinc org. compds. (Helfrich and Reid, *C. A.* 14, 2480; Kermack, *et al.*, *C. A.* 16, 4301, Bales and Nickelson, *C. A.* 18, 51). The action of Zn dust on halogen derivs. contg. S is here investigated. The interaction between (ClCH$_2$CH$_2$)$_2$S (I), and Zn dust is a complex reaction resulting in a large no. of compds. The I is entirely decompd. with formation of C$_2$H$_4$, H$_2$S, diethylene disulfide S(C$_2$H$_4$C$_2$H$_4$)S (II), HCl, etc. 2I + 2Zn = II + 2ZnCl$_2$ + 2C$_2$H$_4$; I + Zn = H$_2$ + (CH$_2$ CH)$_2$S (III), and I + Zn + H$_2$ = H$_2$S + ZnCl$_2$ + 2C$_2$H$_4$. The decompn. is caused by metallic Zn and not by ZnO present as impurity. Among liquid products of the reaction are found some H$_2$S, ClH$_2$ CHSR (IV) and (CH$_2$SH)$_2$. The formation of the first 2 is explained by addn. of H to III: III + 2H$_2$ = H$_2$S and III + H$_2$ = IV. III and its polymers are formed in large amts. when I is heated with metals and their oxides in presence of inert solvents, such as xylene, and not of alc.; a part of III is hereby converted to II, which is completely decompd. to gaseous products. Some tests produced CH$_2$:CHSC$_2$H$_4$CH$_2$OH. III + H$_2$O = CH$_2$:CHSC$_2$H$_4$CH$_2$OH. The main products of the reaction between I and Zn in the presence of alc. are ethers of thiodiglycol of the general formula (ROCH$_2$CH$_2$)$_2$S, which are stable liquid compds. capable of distn. under atm. pressure without decompn., the formation of which is thus formulated: I + Zn = III + ZnCl$_2$ + H$_2$; I + ZnO = III + ZnCl$_2$ + H$_2$O and III + 2ROH = (ROC$_2$H$_4$)$_2$S. The other interpretation is based mainly on sapon. in presence of H$_2$O and alc.: (C$_2$H$_4$Cl)$_2$S + H$_2$O + ZnO = (C$_2$H$_4$OH)$_2$S + ZnCl$_2$. I + EtOH

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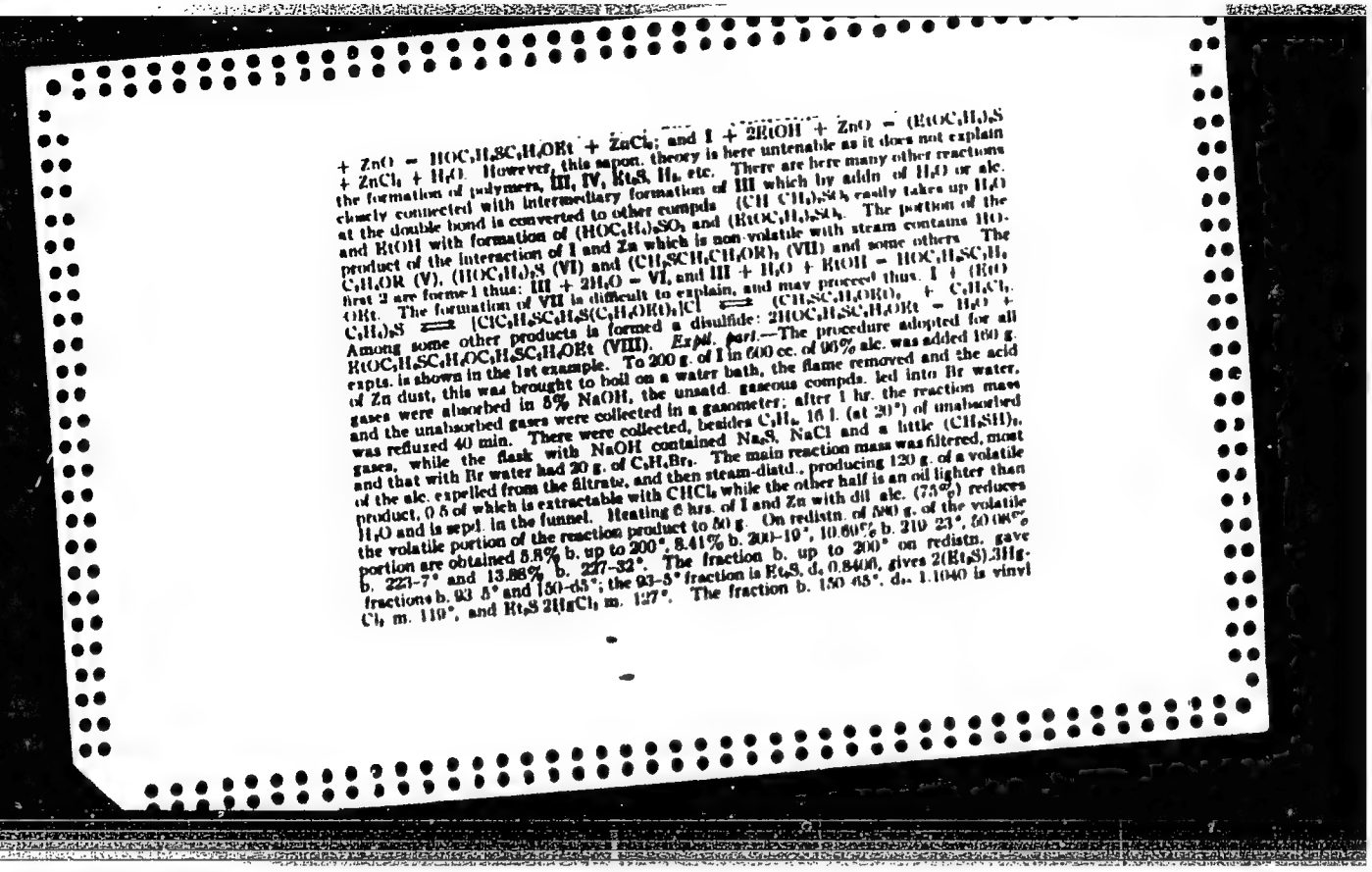
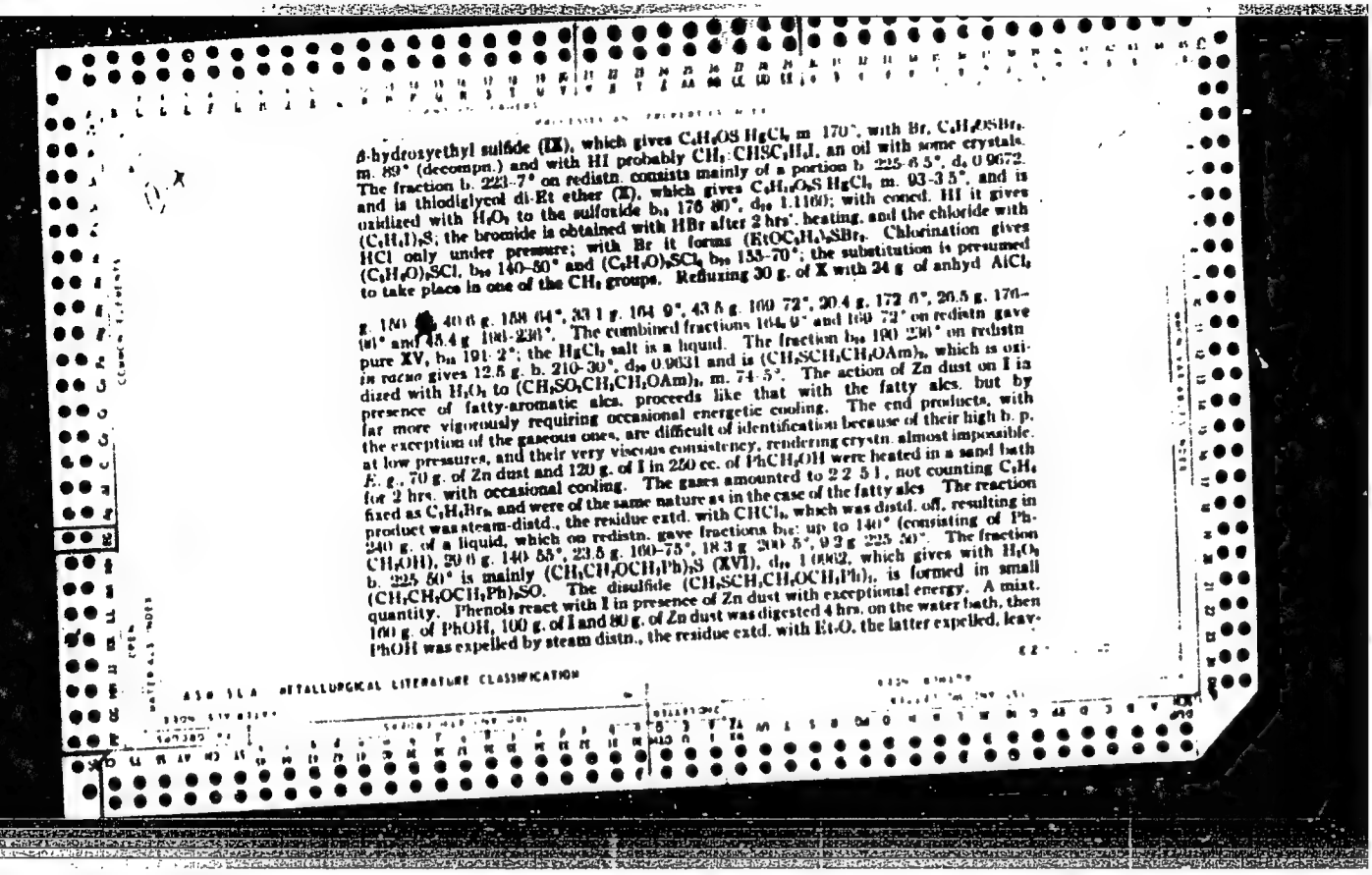
CHEM NO' 1



+ ZnO = $HOC_6H_3SC_6H_4ORt$ + $ZnCl_2$; and I + 2RtOH + ZnO = $(RtOC_6H_4)_2S$ + $ZnCl_2$ + H_2O. However, this equation theory is here untenable as it does not explain the formation of polymers, III, IV, Rt_2S, H_2, etc. There are here many other reactions clearly connected with intermediary formation of III which by addn. of H_2O or alc. at the double bond is converted to other compds. $(CH_2CH_2)_2SO_3$ easily takes up H_2O and RtOH with formation of $(HOC_6H_4)_2SO_3$ and $(RtOC_6H_4)_2SO_3$. The portion of the product of the interaction of I and Zn which is non-volatile with steam contains HO-C_6H_4OR (V), $(HOC_6H_4)_2S$ (VI) and $(CH_2SCH_2CH_2OR)_2$ (VII) and some others. The first 2 are formed thus: III + $2H_2O$ = VI, and III + H_2O + RtOH = $HOC_6H_4SC_2H_4$-ORt. The formation of VII is difficult to explain, and may proceed thus: I + (RtO)-$C_6H_4)_2S$ ⟹ $[ClC_6H_4SC_6H_4S(C_6H_4ORt)_2]Cl$ ⟹ $(CH_2SC_6H_4ORt)_2$ + $C_6H_4Cl_2$. Among some other products is formed a disulfide: $2HOC_6H_4SC_6H_4ORt$ = H_2O + $RtOC_6H_4SC_6H_4OC_6H_4SC_6H_4ORt$ (VIII). *Expl. part.*—The procedure adopted for all expts. is shown in the 1st example. To 200 g. of I in 600 cc. of 96% alc. was added 160 g. of Zn dust, this was brought to boil on a water bath, the flame removed and the acid gases were absorbed in 5% NaOH, the unsatd. gaseous compds. led into Br water, and the unabsorbed gases were collected in a gasometer; after 1 hr. the reaction mass was refluxed 40 min. There were collected, besides C_2H_2, 16 l. (at 20°) of unabsorbed gases, while the flask with NaOH contained Na_2S, NaCl and a little $(CH_3SH)_2$, and that with Br water had 20 g. of $C_2H_2Br_4$. The main reaction mass was filtered, most of the alc. expelled from the filtrate, and then steam-distd., producing 120 g. of a volatile product, 0.5 of which is extractable with $CHCl_3$ while the other half is an oil lighter than H_2O and is sepd. in the funnel. Heating 6 hrs. of I and Zn with dil. alc. (75%) reduces the volatile portion of the reaction product to 80 g. On redistn. of 80 g. of the volatile portion are obtained 5.8% b. up to 200°, 8.41% b. 200–10°, 10.60% b. 210–23°, 50.08% b. 223–7° and 13.88% b. 227–32°. The fraction b. up to 200° on redistn. gave fractions b. 93–5° and 150–65°; the 93–5° fraction is Rt_2S, d_4 0.8400, gives $2(Rt_2S).3HgCl_2$ m. 119°, and $Rt_2S.2HgCl_2$ m. 127°. The fraction b. 150–65°, d_4 1.1040 is vinyl



β-hydroxyethyl sulfide (IX), which gives $C_4H_{10}OS \cdot HgCl_2$, m. 170°, with Br, $C_4H_8OSBr_2$, m. 89° (decompn.) and with HI probably $CH_3 \cdot CHSC_2H_4I$, an oil with some crystals. The fraction b. 223–7° on redistn. consists mainly of a portion b. 225–6.5°, d_4^{0} 0.9672, and is thiodiglycol di-Et ether (X), which gives $C_8H_{18}O_2S \cdot HgCl_2$, m. 93–3.5°, and is oxidized with H_2O_2 to the sulfoxide b_{15} 176–80°, d_{20} 1.1160; with concd. HI it gives $(C_2H_4I)_2S$; the bromide is obtained with HBr after 2 hrs'. heating, and the chloride with HCl only under pressure; with Br it forms $(EtOC_2H_4)_2SBr_2$. Chlorination gives $(C_2H_4O)_2SCl_2$, b_{20} 140–50° and $(C_2H_4O)_2SCl_4$ b_{20} 153–70°; the substitution is presumed to take place in one of the CH_2 groups. Refluxing 30 g. of X with 24 g. of anhyd $AlCl_3$ g. 180 (), 40.6 g. 159–64°, 33.1 g. 164–9°, 43.5 g. 169–72°, 20.4 g. 172–6°, 26.5 g. 176–81° and 45.4 g. 181–230°. The combined fractions 164–9° and 169–72° on redistn. gave pure XV, b_{15} 191–2°; the $HgCl_2$ salt is a liquid. The fraction b_{20} 190–230° on redistn. *in vacuo* gives 12.5 g. b. 210–30°, d_{20} 0.9031 and is $(CH_3SCH_2CH_2OAm)_2$, which is oxidized with H_2O_2 to $(CH_3SO_2CH_2CH_2OAm)_2$, m. 74–5°. The action of Zn dust on I in presence of fatty-aromatic alcs. proceeds like that with the fatty alcs. but by far more vigorously requiring occasional energetic cooling. The end products, with the exception of the gaseous ones, are difficult of identification because of their high b. p. at low pressures, and their very viscous consistency, rendering crystn. almost impossible. E. g., 70 g. of Zn dust and 120 g. of I in 250 cc. of $PhCH_2OH$ were heated in a sand bath for 2 hrs. with occasional cooling. The gases amounted to 2.2–5 l., not counting C_2H_4 fixed as $C_2H_4Br_2$, and were of the same nature as in the case of the fatty alcs. The reaction product was steam-distd., the residue extd. with $CHCl_3$, which was distd. off, resulting in 240 g. of a liquid, which on redistn. gave fractions b_{15}: up to 140° (consisting of $PhCH_2OH$), 20.6 g. 140–55°, 23.5 g. 160–75°, 18.3 g. 200–5°, 9.2 g. 225–50°. The fraction b. 225–50° is mainly $(CH_2CH_2OCH_2Ph)_2S$ (XVI), d_4^{0} 1.0062, which gives with H_2O_2 $(CH_2CH_2OCH_2Ph)_2SO$. The disulfide $(CH_2SCH_2CH_2OCH_2Ph)_2$, is formed in small quantity. Phenols react with I in presence of Zn dust with exceptional energy. A mixt. 100 g. of PhOH, 100 g. of I and 80 g. of Zn dust was digested 4 hrs. on the water bath, then PhOH was expelled by steam distn., the residue extd. with Et_2O, the latter expelled, leav-

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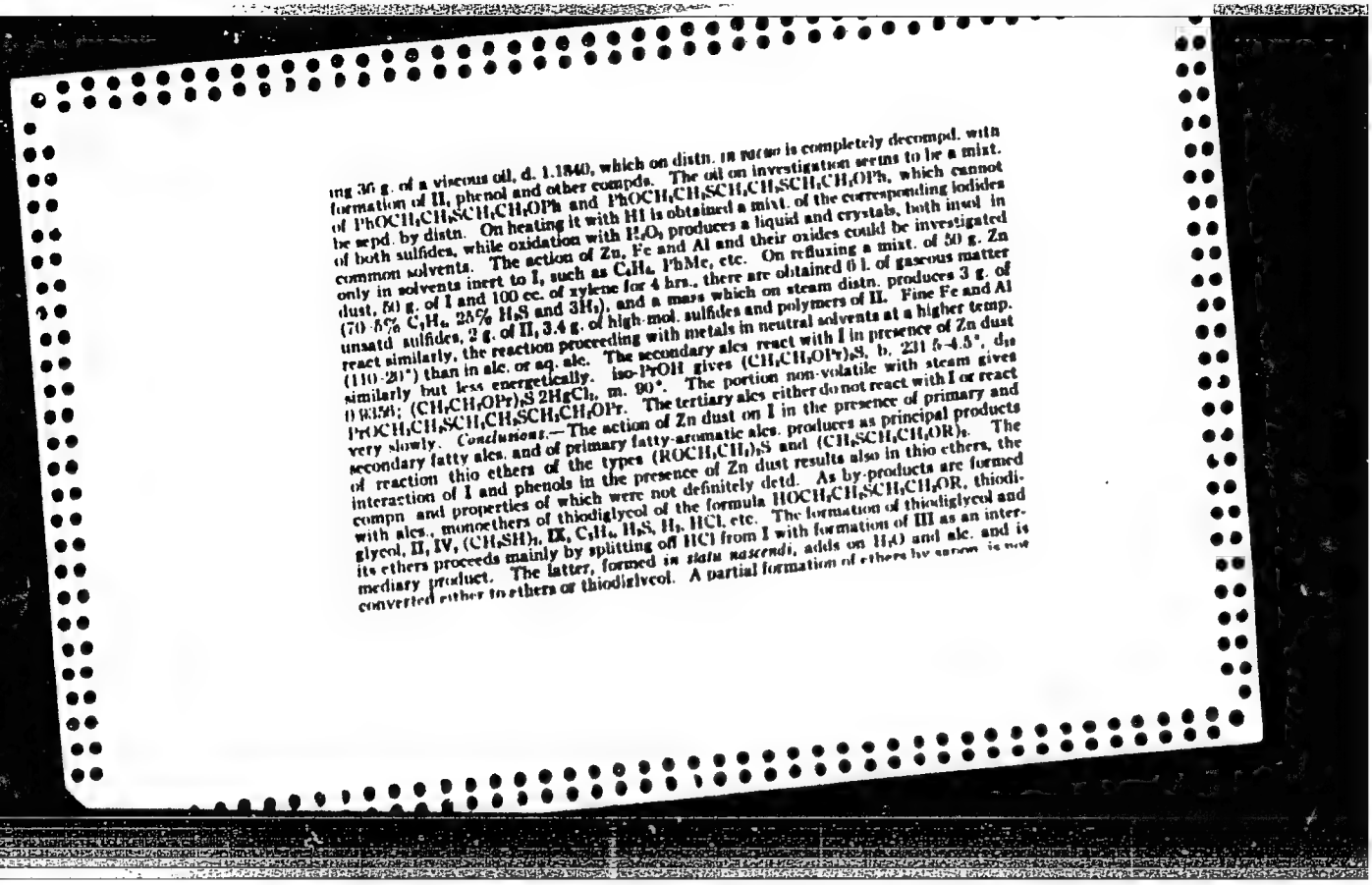
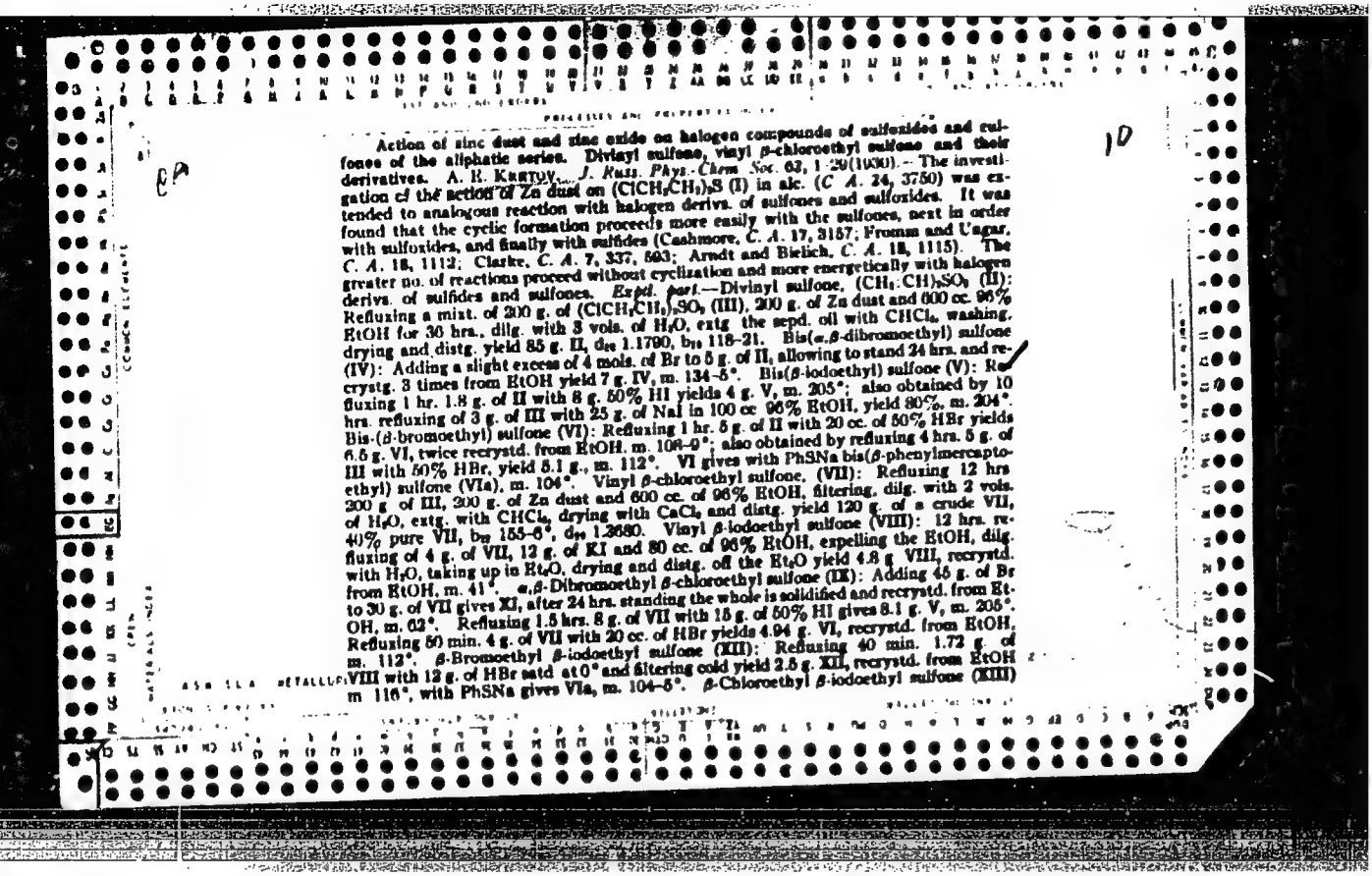
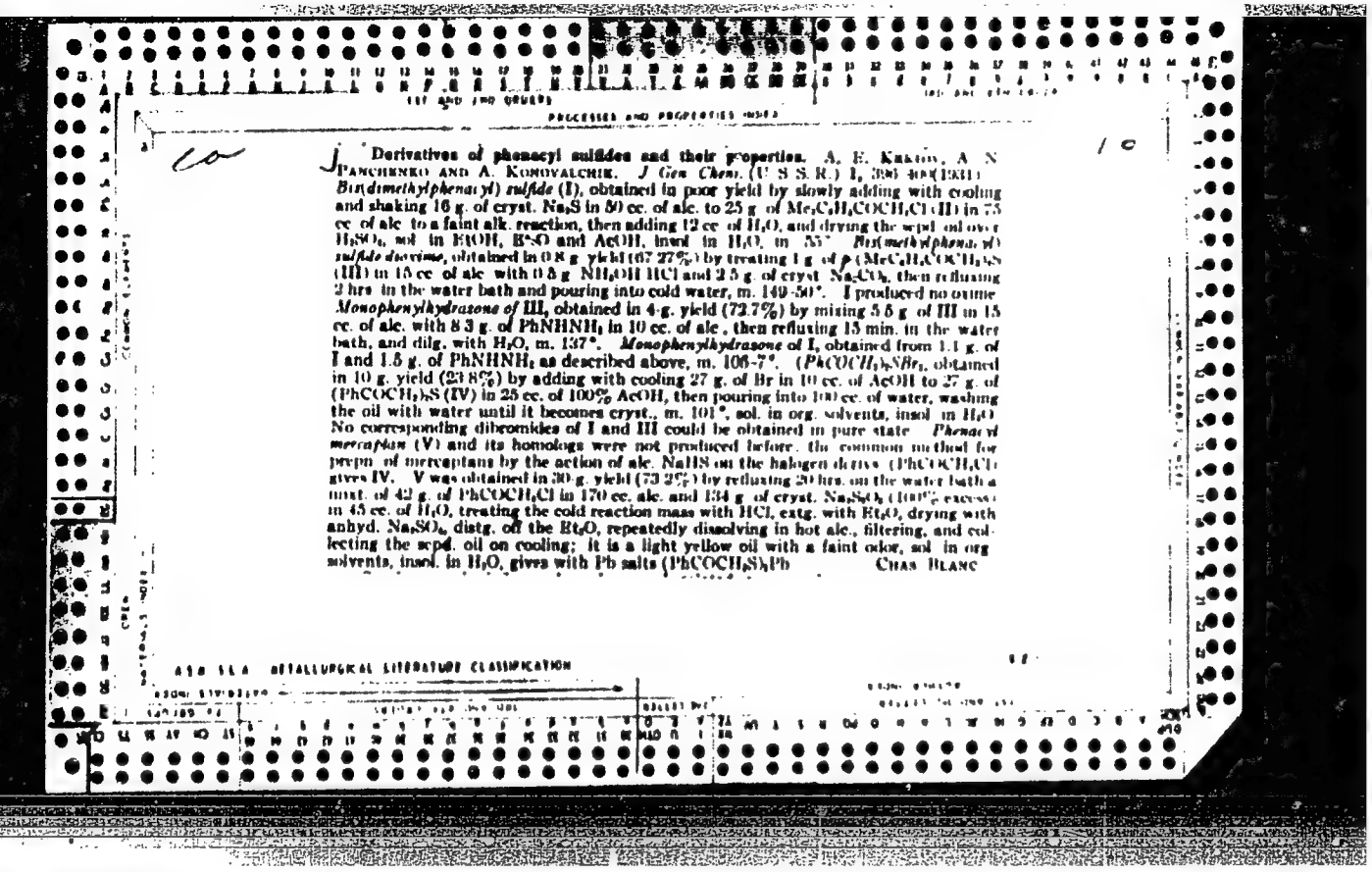


ing 36 g. of a viscous oil, d. 1.1840, which on distn. *in vacuo* is completely decompd. with formation of II, phenol and other compds. The oil on investigation seems to be a mixt. of $PhOCH_2CH_2SCH_2CH_2OPh$ and $PhOCH_2CH_2SCH_2CH_2SCH_2CH_2OPh$, which cannot be sepd. by distn. On heating it with HI is obtained a mixt. of the corresponding iodides of both sulfides, while oxidation with H_2O_2 produces a liquid and crystals, both insol. in common solvents. The action of Zn, Fe and Al and their oxides could be investigated only in solvents inert to I, such as C_6H_6, PhMe, etc. On refluxing a mixt. of 50 g. Zn dust, 50 g. of I and 100 cc. of xylene for 4 hrs., there are obtained 6 l. of gaseous matter (70–5% C_2H_4, 25% H_2S and $3H_2$), and a mass which on steam distn. produces 3 g. of unsatd. sulfides, 2 g. of II, 3.4 g. of high-mol. sulfides and polymers of II. Fine Fe and Al react similarly, the reaction proceeding with metals in neutral solvents at a higher temp. (110–20°) than in alc. or aq. alc. The secondary alcs react with I in presence of Zn dust similarly but less energetically. iso-PrOH gives $(CH_2CH_2OPr)_2S$, b. 231.5–4.5°, d_{15} 0.9356; $(CH_2CH_2OPr)_2S \cdot 2HgCl_2$, m. 90°. The portion non-volatile with steam gives $PrOCH_2CH_2SCH_2CH_2SCH_2CH_2OPr$. The tertiary alcs either do not react with I or react very slowly. *Conclusions.*—The action of Zn dust on I in the presence of primary and secondary fatty alcs. and of primary fatty-aromatic alcs. produces as principal products of reaction thio ethers of the types $(ROCH_2CH_2)_2S$ and $(CH_2SCH_2CH_2OR)_2$. The interaction of I and phenols in the presence of Zn dust results also in thio ethers, the compn. and properties of which were not definitely detd. As by-products are formed with alcs., monoethers of thiodiglycol of the formula $HOCH_2CH_2SCH_2CH_2OR$, thiodiglycol, II, IV, $(CH_2SH)_2$, IX, C_2H_4, H_2S, H_2, HCl, etc. The formation of thiodiglycol and its ethers proceeds mainly by splitting off HCl from I with formation of III as an intermediary product. The latter, formed *in statu nascendi*, adds on H_2O and alc. and is converted either to ethers or thiodiglycol. A partial formation of ethers by action is not

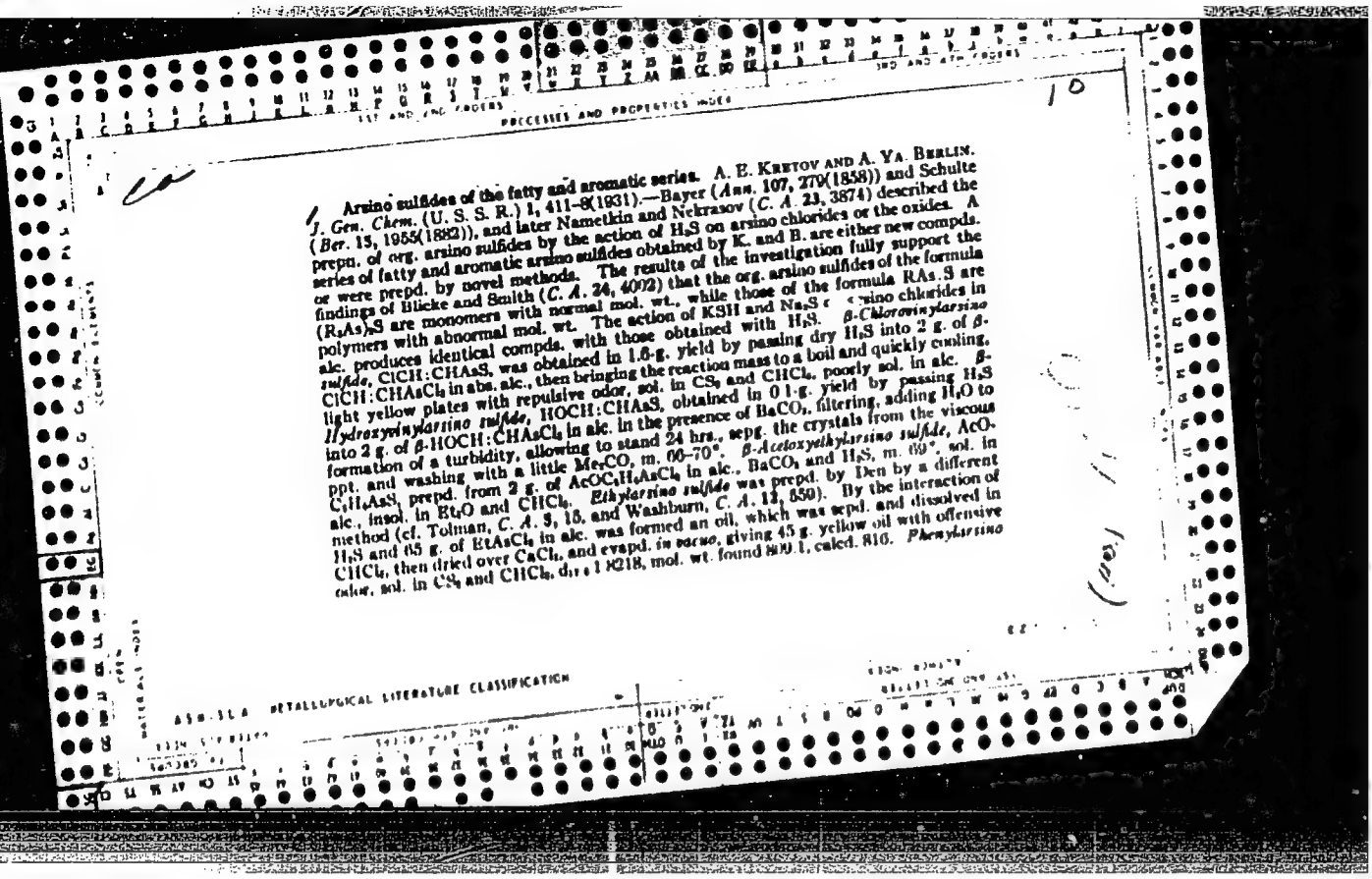


Action of zinc dust and zinc oxide on halogen compounds of sulfoxides and sulfones of the aliphatic series. Divinyl sulfone, vinyl β-chloroethyl sulfone and their derivatives. A. E. Krutov. *J. Russ. Phys.-Chem. Soc.* 62, 1-29(1930).—The investigation of the action of Zn dust on $(ClCH_2CH_2)_2S$ (I) in alc. (*C. A.* 24, 3750) was extended to analogous reaction with halogen derivs. of sulfones and sulfoxides. It was found that the cyclic formation proceeds more easily with the sulfones, next in order with sulfoxides, and finally with sulfides (Cashmore, *C. A.* 17, 3157; Fromm and Ungar, *C. A.* 18, 1112; Clarke, *C. A.* 7, 337, 893; Arndt and Bielich, *C. A.* 18, 1115). The greater no. of reactions proceed without cyclization and more energetically with halogen derivs. of sulfides and sulfones. *Exptl. part.*—Divinyl sulfone, $(CH_2:CH)_2SO_2$ (II): Refluxing a mixt. of 200 g. of $(ClCH_2CH_2)_2SO_2$ (III), 200 g. of Zn dust and 600 cc. 96% EtOH for 30 hrs., dilg. with 3 vols. of H_2O, extg. the sepd. oil with $CHCl_3$, washing, drying and distg. yield 85 g. II, d_{20} 1.1790, b_{10} 118–21. Bis(α,β-dibromoethyl) sulfone (IV): Adding a slight excess of 4 mols. of Br to 5 g. of II, allowing to stand 24 hrs. and recrystg. 3 times from EtOH yield 7 g. IV, m. 134–5°. Bis(β-iodoethyl) sulfone (V): Refluxing 1 hr. 1.8 g. of II with 8 g. 50% HI yields 4 g. V, m. 205°; also obtained by 10 hrs. refluxing of 3 g. of III with 25 g. of NaI in 100 cc. 96% EtOH, yield 80%, m. 204°. Bis-(β-bromoethyl) sulfone (VI): Refluxing 1 hr. 5 g. of II with 20 cc. of 50% HBr yields 6.5 g. VI, twice recrystd. from EtOH, m. 108–9°; also obtained by refluxing 4 hrs. 5 g. of III with 50% HBr, yield 8.1 g., m. 112°. VI gives with PhSNa bis(β-phenylmercaptoethyl) sulfone (VIa), m. 104°. Vinyl β-chloroethyl sulfone, (VII): Refluxing 12 hrs 200 g. of III, 200 g. of Zn dust and 600 cc. of 96% EtOH, filtering, dilg. with 2 vols. of H_2O, extg. with $CHCl_3$, drying with $CaCl_2$ and distg. yield 120 g. of a crude VII, 40% pure VII, b_{20} 155–6°, d_{20} 1.3680. Vinyl β-iodoethyl sulfone (VIII): 12 hrs. refluxing of 4 g. of VII, 12 g. of KI and 80 cc. of 96% EtOH, expelling the EtOH, dilg. with H_2O, taking up in Et_2O, drying and distg. off the Et_2O yield 4.8 g. VIII, recrystd. from EtOH, m. 41°. α,β-Dibromoethyl β-chloroethyl sulfone (IX): Adding 45 g. of Br to 30 g. of VII gives XI, after 24 hrs. standing the whole is solidified and recrystd. from EtOH, m. 62°. Refluxing 1.5 hrs. 8 g. of VII with 15 g. of 50% HI gives 8.1 g. V, m. 205°. Refluxing 60 min. 4 g. of VII with 20 cc. of HBr yields 4.94 g. VI, recrystd. from EtOH, m. 112°. β-Bromoethyl β-iodoethyl sulfone (XII): Refluxing 40 min. 1.72 g. of VIII with 12 g. of HBr satd. at 0° and filtering cold yield 2.8 g. XII, recrystd. from EtOH m. 116°, with PhSNa gives VIa, m. 104–5°. β-Chloroethyl β-iodoethyl sulfone (XIII)

was prepd. in a manner similar to XII. β-Chloroethyl β bromoethyl sulfone (XIV), m. 98°, together with VI, is formed on heating III with IIIb. α,β-Dibromoethyl β iodoethyl sulfone (XV) and α,β,β'-tribromodiethyl sulfone (XVI) are obtained by interaction of VIII and Br; the mixt. of both halides is difficult to sep. α,β-Diiodoethyl vinyl sulfone (XVII): To an emulsion of II and NaOH (an excess of 10%) is slowly added 2 *N* I in KI to permanent coloration, after standing for 2 hrs. the reaction mass is acidified, left overnight, filtered, pressed between filter paper and freed from the last traces of I in a vacuum desiccator, black crystals are obtained, having no sharp m. p., easily sol. in many org. solvents. Direct chlorination of II and VII produces a heavy mass, from which were isolated, resp., bis(α,β-dichloroethyl) sulfone (XVIII) and α,β,β'-trichloroethyl sulfone (XIX), both compds. are viscous liquids easily decomposed. II was also prepd. by refluxing a mixt. of 15 g. of III, 75 g. of ZnO and 300 cc. of 90% EtOH, dild. with 2 vols. of H_2O, extd. 3 times with $CHCl_3$, expelling the $CHCl_3$, yield 70 g., b_{10} 116–25°, which on redistn. gives 30 g., b_{10} 117–20°. VII was also obtained by refluxing a mixt. of 100 g. of III, 50 g. of ZnO and 150 cc. of 92% EtOH, yield 20 g., b_{10} 150°. H_2SO_3 and especially its acid salts easily combine with II and VII with 100% yields: $(CH_2:CH)_2SO_2 + 2NaHSO_3 = (NaO_3SCH_2CH_2)_2SO_2$ (XX). $CH_2:CHSO_2CH_2CH_2Cl + 2NaHSO_3 = NaCl + NaO_3SCH_2CH_2SO_2CH_2CH_2SO_3H$ (XXI). XX is prepd. by refluxing 1.8 g. of II and 18 cc. of 40% $NaHSO_3$ for 1 hr., yield 3 g., purified by pptn. with EtOH. XXI is obtained as above in 3.2 g. yield from 2 g. of VII and 20 g. of 40% $NaHSO_3$. II and VII combine with H_2O, giving 100% of diglycol sulfone which in the presence of alkalies is converted to the thioxane: $(CH_2:CH)_2SO_2 + 2H_2O = (HOCH_2CH_2)_2SO_2$, and $SO_2(CH_2{\cdot}CH_2)_2O + H_2O$. $CH_2:CHSO_2CH_2CH_2Cl + KOH + H_2O = KCl + (HOCH_2CH_2)_2SO_2$ and thioxane. A mixt. of 4.2 g. of II and 40 cc. of 2 *N* NaOH was refluxed 1 hr., cooled, filtered, the filtrate evapd. and extd. with $CHCl_3$, yield 3.7 g., needles, m. 129–30°. A mixt. of 4.9 g. of VII and 50 cc. of 2 *N* NaOH, treated as above, yields 4.5 g., needles, m. 120–30°. Bis(β ethoxyethyl) sulfone (XXII) was prepd. by refluxing 2 hrs. a mixt. of 18 g. of VII in EtOH and 5.5 g. of NaOH in EtOH, filtered, the filtrate extd. with $CHCl_3$, distd., yield 17 g., redistd., b_{10} 180.3°, d_{20} 1.1282. The MeO, EtO and iso-AmO derivs. were described by Cashmore (*C. A.* 17, 3157) without giving adequate and sufficient data. The following method gives good yields: To 100 g. of III in 200 cc. of 92% EtOH is slowly added a soln. of 42 g. NaOH in 250 cc. of EtOH, refluxed 1 hr., EtOH distd. off and XXII is extd. with Et_2O, yield 80%, b_{10} 175–85°. The MeO deriv. is obtained in a similar manner. For prepn. of derivs.



Derivatives of phenacyl sulfides and their properties. A. E. Kharov, A. N. Panchenko and A. Kondvalchik. *J Gen Chem.* (U S S R.) 1, 390-400(1931). *Bis(dimethylphenacyl) sulfide* (I), obtained in poor yield by slowly adding with cooling and shaking 16 g. of cryst. Na_2S in 80 cc. of alc. to 25 g. of $Me_2C_6H_3COCH_2Cl$ (II) in 75 cc. of alc. to a faint alk. reaction, then adding 12 cc. of H_2O, and drying the separated oil over H_2SO_4, sol. in EtOH, Et_2O and AcOH, insol. in H_2O, m. 55°. *Bis(methylphenacyl) sulfide dioxime*, obtained in 0.8 g. yield (67.27%) by treating 1 g. of *p*-$(MeC_6H_4COCH_2)_2S$ (III) in 15 cc. of alc. with 0.8 g. NH_2OH HCl and 2.5 g. of cryst. Na_2CO_3, then refluxing 2 hrs. in the water bath and pouring into cold water, m. 149-50°. I produced no oxime. *Monophenylhydrazone of* III, obtained in 4 g. yield (72.7%) by mixing 5.5 g. of III in 15 cc. of alc. with 8.3 g. of $PhNHNH_2$ in 10 cc. of alc., then refluxing 15 min. in the water bath, and dilg. with H_2O, m. 137°. *Monophenylhydrazone of* I, obtained from 1.1 g. of I and 1.5 g. of $PhNHNH_2$ as described above, m. 106-7°. $(PhCOCH_2)_2SBr_2$, obtained in 10 g. yield (23.8%) by adding with cooling 27 g. of Br in 10 cc. of AcOH to 27 g. of $(PhCOCH_2)_2S$ (IV) in 25 cc. of 100% AcOH, then pouring into 100 cc. of water, washing the oil with water until it becomes cryst., m. 101°, sol. in org. solvents, insol. in H_2O. No corresponding dibromides of I and III could be obtained in pure state. *Phenacyl mercaptan* (V) and its homologs were not produced before. the common method for prepn. of mercaptans by the action of alc. NaHS on the halogen derivs. $(PhCOCH_2Cl$ gives IV. V was obtained in 30 g. yield (73.2%) by refluxing 20 hrs. on the water bath a mixt. of 42 g. of $PhCOCH_2Cl$ in 170 cc. alc. and 134 g. of cryst. Na_2SO_3 (100% excess) in 45 cc. of H_2O, treating the cold reaction mass with HCl, extg. with Et_2O, drying with anhyd. Na_2SO_4, distg. off the Et_2O, repeatedly dissolving in hot alc., filtering, and collecting the sepd. oil on cooling; it is a light yellow oil with a faint odor, sol. in org. solvents, insol. in H_2O, gives with Pb salts $(PhCOCH_2S)_2Pb$. Chas. Blanc



Arsino sulfides of the fatty and aromatic series. A. E. Kretov and A. Ya. Berlin. *J. Gen. Chem.* (U. S. S. R.) 1, 411–8(1931).—Bayer (*Ann.* 107, 279(1858)) and Schulte (*Ber.* 15, 1955(1882)), and later Nametkin and Nekrasov (*C. A.* 23, 3874) described the prepn. of org. arsino sulfides by the action of H_2S on arsino chlorides or the oxides. A series of fatty and aromatic arsino sulfides obtained by K. and B. are either new compds. or were prepd. by novel methods. The results of the investigation fully support the findings of Blicke and Smith (*C. A.* 24, 4092) that the org. arsino sulfides of the formula $(R_2As)_2S$ are monomers with normal mol. wt., while those of the formula $RAs.S$ are polymers with abnormal mol. wt. The action of KSH and Na_2S on arsino chlorides in alc. produces identical compds. with those obtained with H_2S. *β-Chlorovinylarsino sulfide*, ClCH:CHAsS, was obtained in 1.6-g. yield by passing dry H_2S into 2 g. of *β*-ClCH:CHAsCl$_2$ in abs. alc., then bringing the reaction mass to a boil and quickly cooling. light yellow plates with repulsive odor, sol. in CS_2 and $CHCl_3$, poorly sol. in alc. *β-Hydroxyvinylarsino sulfide*, HOCH:CHAsS, obtained in 0.1-g. yield by passing H_2S into 2 g. of *β*-HOCH:CHAsCl$_2$ in alc. in the presence of $BaCO_3$, filtering, adding H_2O to formation of a turbidity, allowing to stand 24 hrs., sepg. the crystals from the viscous ppt. and washing with a little Me_2CO, m. 60–70°. *β-Acetoxyethylarsino sulfide*, $AcOC_2H_4AsS$, prepd. from 2 g. of $AcOC_2H_4AsCl_2$ in alc., $BaCO_3$ and H_2S, m. 69°, sol. in alc., insol. in Et_2O and $CHCl_3$. *Ethylarsino sulfide* was prepd. by Den by a different method (cf. Tolman, *C. A.* 3, 15, and Washburn, *C. A.* 12, 850). By the interaction of H_2S and 65 g. of $EtAsCl_2$ in alc. was formed an oil, which was sepd. and dissolved in $CHCl_3$, then dried over $CaCl_2$, and evapd. *in vacuo*, giving 45 g. yellow oil with offensive odor, sol. in CS_2 and $CHCl_3$, d_{19} 1.9218, mol. wt. found 809.1, calcd. 816. *Phenylarsino*

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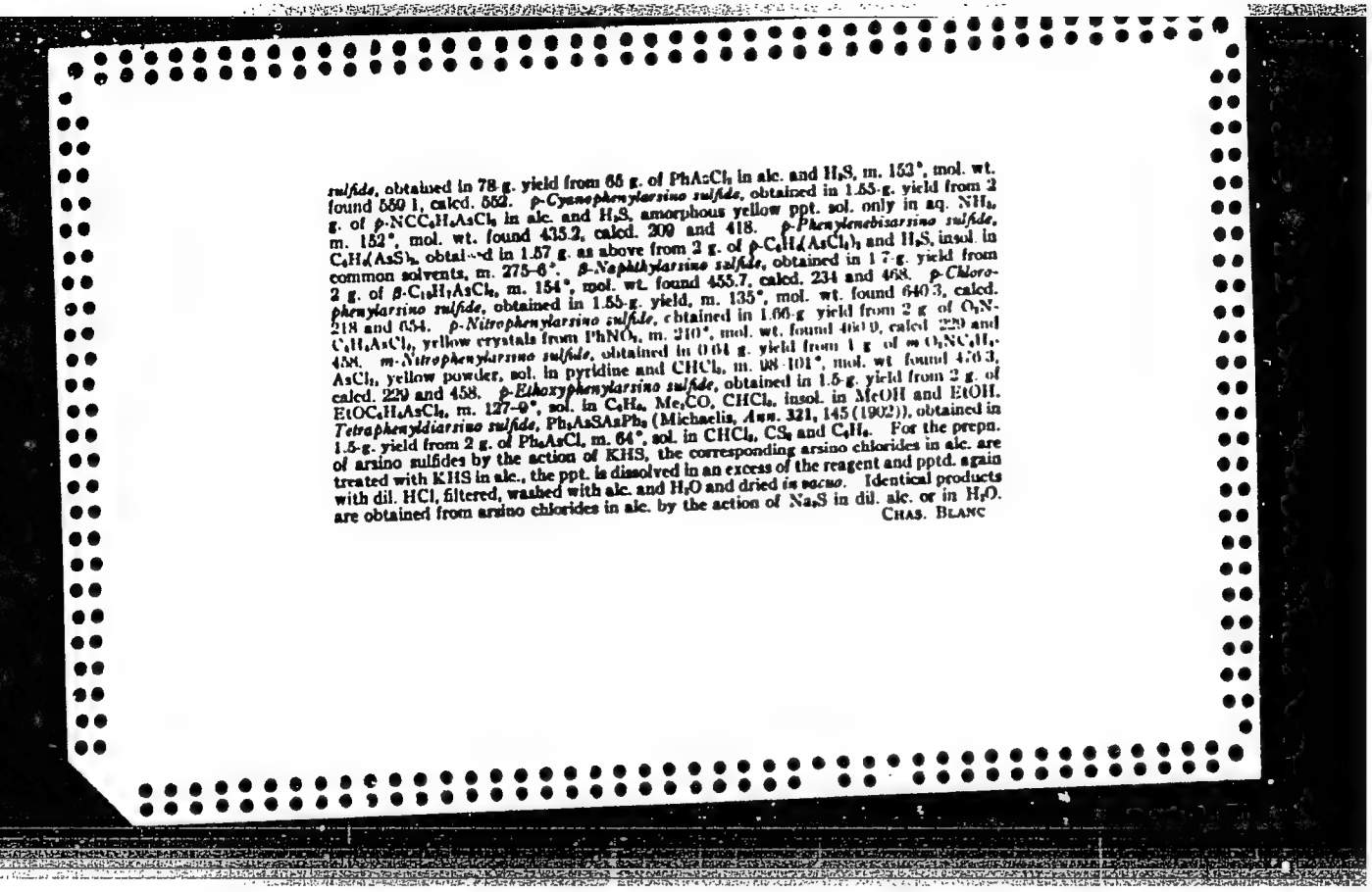
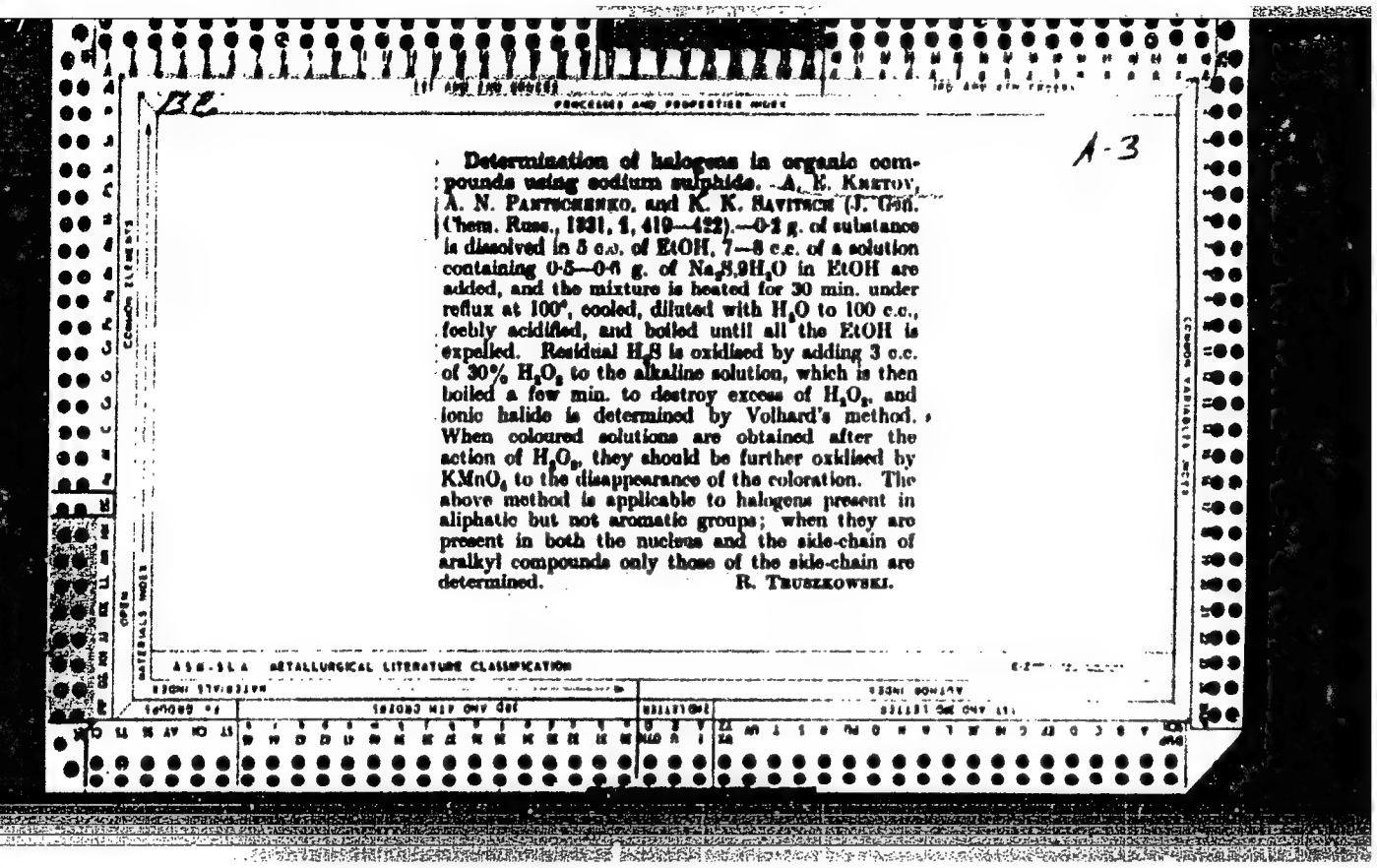


sulfide, obtained in 78 g. yield from 66 g. of $PhAsCl_2$ in alc. and H_2S, m. 153°, mol. wt. found 589 1, calcd. 552. *p-Cyanophenylarsino sulfide*, obtained in 1.55-g. yield from 2 g. of $p\text{-}NCC_6H_4AsCl_2$ in alc. and H_2S, amorphous yellow ppt. sol. only in aq. NH_3, m. 152°, mol. wt. found 435.2, calcd. 209 and 418. *p-Phenylenebisarsino sulfide*, $C_6H_4(AsS)_2$, obtained in 1.57 g. as above from 2 g. of $p\text{-}C_6H_4(AsCl_2)_2$ and H_2S, insol. in common solvents, m. 275–6°. *β-Naphthylarsino sulfide*, obtained in 1.7-g. yield from 2 g. of $\beta\text{-}C_{10}H_7AsCl_2$, m. 154°, mol. wt. found 455.7, calcd. 234 and 468. *p-Chlorophenylarsino sulfide*, obtained in 1.55-g. yield, m. 135°, mol. wt. found 640.3, calcd. 218 and 654. *p-Nitrophenylarsino sulfide*, obtained in 1.66-g. yield from 2 g. of $O_2NC_6H_4AsCl_2$, yellow crystals from $PhNO_3$, m. 210°, mol. wt. found 466.9, calcd. 229 and 458. *m-Nitrophenylarsino sulfide*, obtained in 0.84 g. yield from 1 g. of $m\text{-}O_2NC_6H_4AsCl_2$, yellow powder, sol. in pyridine and $CHCl_3$, m. 98–101°, mol. wt. found 470.3, calcd. 229 and 458. *p-Ethoxyphenylarsino sulfide*, obtained in 1.5-g. yield from 2 g. of $EtOC_6H_4AsCl_2$, m. 127–9°, sol. in C_6H_6, Me_2CO, $CHCl_3$, insol. in MeOH and EtOH. *Tetraphenyldiarsino sulfide*, $Ph_2AsSAsPh_2$ (Michaelis, *Ann.* **321**, 145 (1902)), obtained in 1.5-g. yield from 2 g. of Ph_2AsCl, m. 64°, sol. in $CHCl_3$, CS_2 and C_6H_6. For the prepn. of arsino sulfides by the action of KHS, the corresponding arsino chlorides in alc. are treated with KHS in alc., the ppt. is dissolved in an excess of the reagent and pptd. again with dil. HCl, filtered, washed with alc. and H_2O and dried *in vacuo*. Identical products are obtained from arsino chlorides in alc. by the action of Na_2S in dil. alc. or in H_2O.

CHAS. BLANC



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Determination of halogens in organic compounds using sodium sulphide. A. E. Krestov, A. N. Pantschenko, and K. K. Savitsch (J. Gen. Chem. Russ., 1931, 1, 419—422).—0·2 g. of substance is dissolved in 5 c.c. of EtOH, 7—8 c.c. of a solution containing 0·5—0·6 g. of $Na_2S,9H_2O$ in EtOH are added, and the mixture is heated for 30 min. under reflux at 100°, cooled, diluted with H_2O to 100 c.c., feebly acidified, and boiled until all the EtOH is expelled. Residual H_2S is oxidised by adding 3 c.c. of 30% H_2O_2 to the alkaline solution, which is then boiled a few min. to destroy excess of H_2O_2, and ionic halide is determined by Volhard's method. When coloured solutions are obtained after the action of H_2O_2, they should be further oxidised by $KMnO_4$ to the disappearance of the coloration. The above method is applicable to halogens present in aliphatic but not aromatic groups; when they are present in both the nucleus and the side-chain of aralkyl compounds only those of the side-chain are determined. R. Truszkowski.

Oxidizing properties of halonitromethanes. A. K. Krkiov and N. M. Melnikov. *J. Gen. Chem.* (U. S. S. R.) 2, 202-7(1932).—Nitro compds. act as strong oxidizing agents, undergoing some intramol. oxidation with disintegration of the mol. (Nef, *Ann.* 280, 273(1894)), while halonitro derivs. react with even greater oxidizing energy, undergoing highly complex reactions and producing a considerable no. of decompn. products. The oxidizing properties of chloropicrin (I) and bromopicrin (II) were further established (cf. Ray, Guha and Das, *C. A.* 14, 1208; 16, 1953; Nekrasov and M., *C. A.* 24, 87) by the pptn. of I in the interaction of I and KI (Sukhev, *C. A.* 25, 4310) by their reactions with KI and alkali sulfides and hydrosulfides and mercaptans. *I and NaHS.* Pure cryst. $NaHS.2H_2O$ (27 g.) was dissolved in 250-300 cc. of EtOH by refluxing, the air being expelled from the system by the alc. vapors; then 15.3 g. of I was introduced drop by drop in about 1.5 hrs. while the soln. was kept boiling. In some expts. the escaping gases were absorbed in satd. alc. KOH, while for the detn. of such gases as N_2O, and CO_2 in the mixts. sep. expts. were required. Besides CO_2 there was obtained 410-40 cc. gases contg. NO 14.0-17.2, CO 2-4.4, O 0.6-1, and N 79.2-80%. The reaction flask contained 3.9-4.1 g. of elementary S, 21-5.6 g. of NaCl and 0.3-0.9 g. of $NaNO_2$. NH_3 and NH_2OH were detected but not detd. CS_2 absorbed in alc. KOH and converted quantitatively to CS(OEt)SK was pptd. as the Cu salt and analyzed by titrating with I and detg. the S. *I and K_2S.* Under similar conditions, 22.4 g. of pure cryst. $K_2S.2H_2O$ in 250 cc. of alc. produced with I, besides COS, 510-40 cc. of gases contg. NO 22.54-25, COS 30-33.7, O 0.7, CO 4-6 and N 33.1-35.7%. No NH_3 and NH_2OH were found. A salt cake (19.8-20 g.) was formed contg. mostly KCl, 0.4 g. of KNO_2 and 0.5 g. S. In the alc. KOH was found considerable EtOCSOK formed by the interaction of COS and alc. KOH. No CS_2 was found in the alc. KOH. *II and Na_2S.* To 90 g. of $Na_2S.9H_2O$ in 250 cc. of alc. was slowly added 75 g. of II in 75 cc. of alc., and then the mixt. was heated 15-30 min. to complete the reaction. The gas contained CO_2 30.5, NO 12.4,

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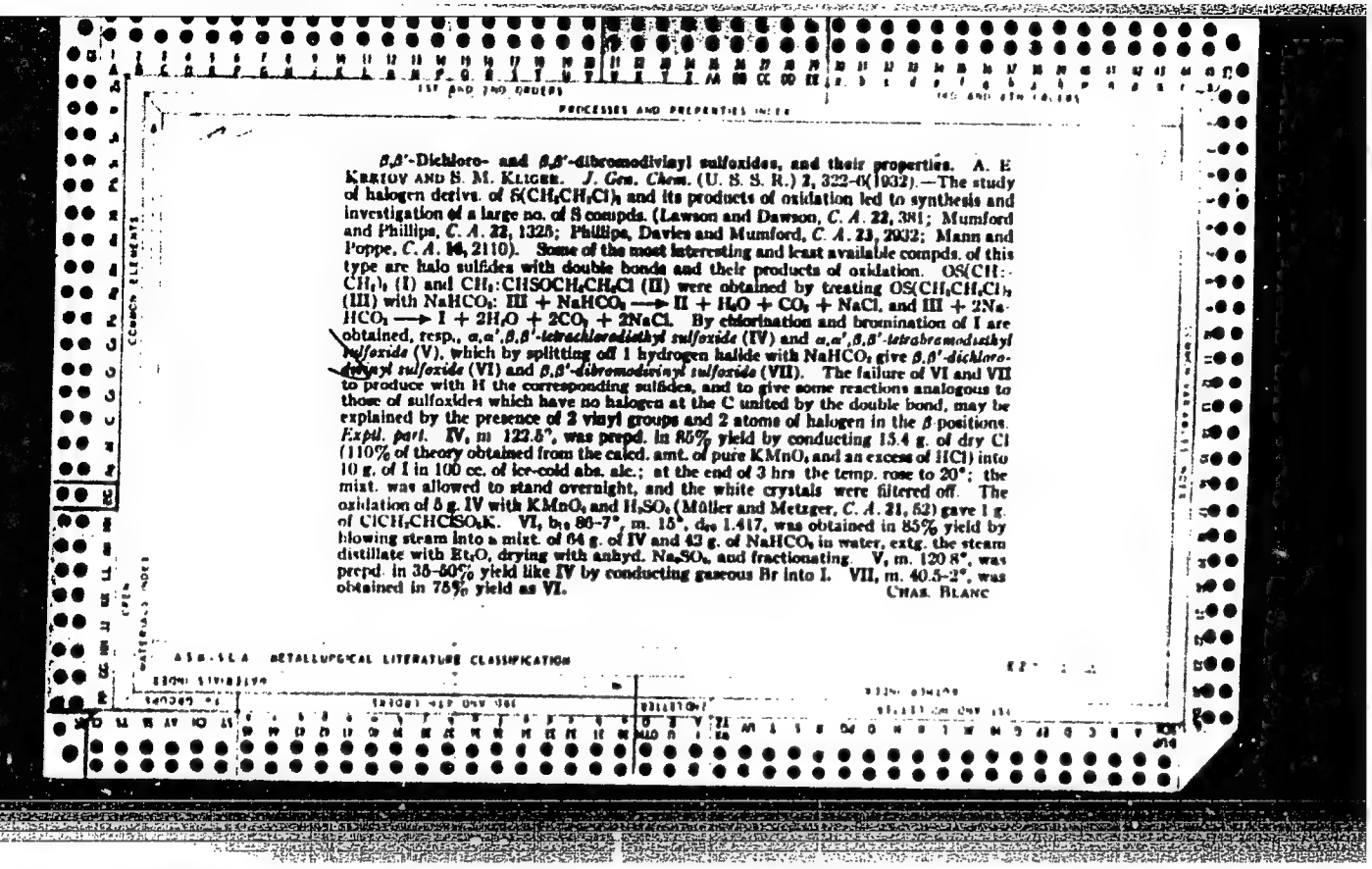
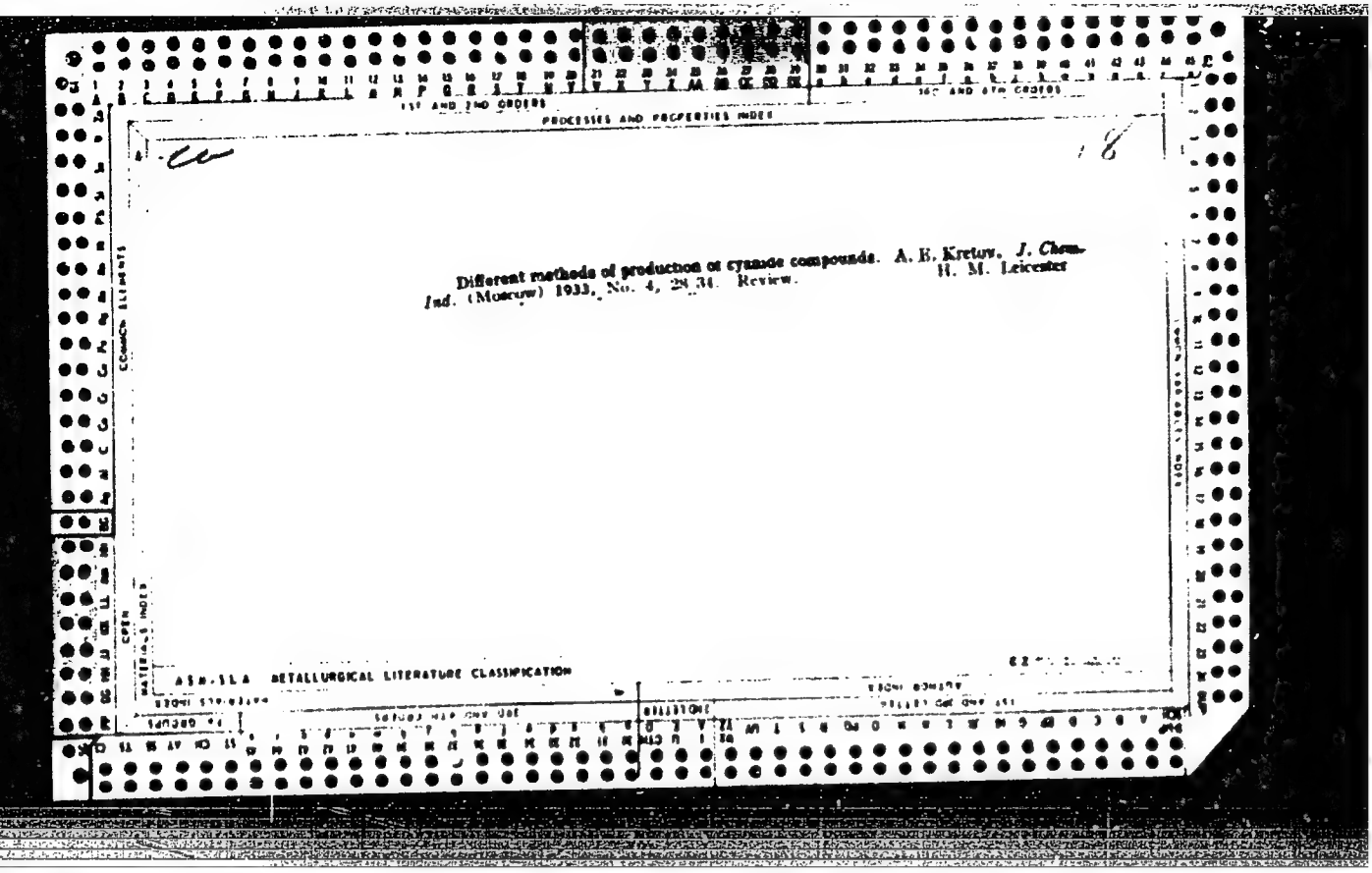


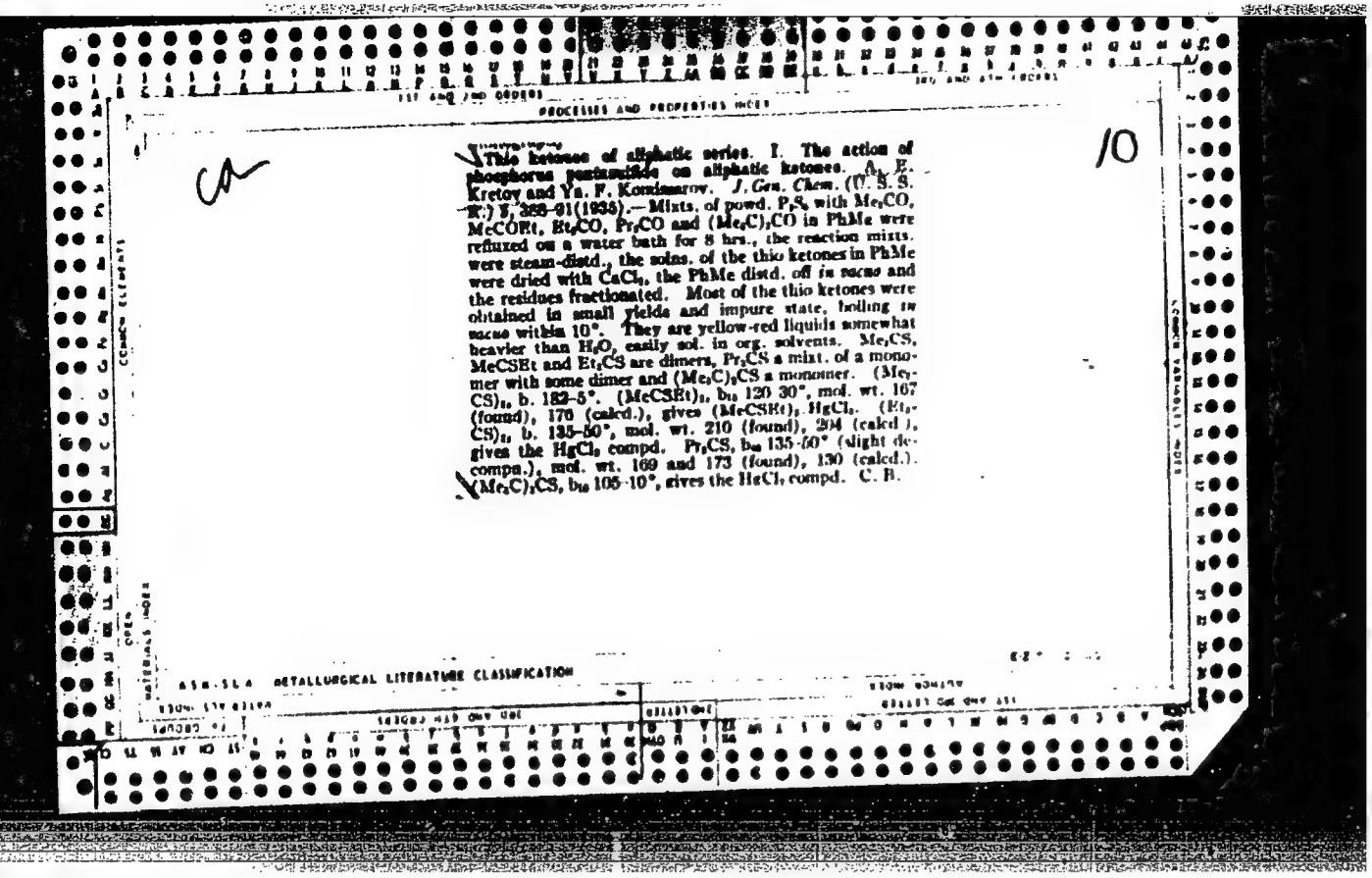
PROCESSES AND PROPERTIES INDEX

β,β'-Dichloro- and *β,β'*-dibromodivinyl sulfoxides, and their properties. A. E. Arbuzov and S. M. Kliger. *J. Gen. Chem.* (U. S. S. R.) **2**, 322-6(1932).—The study of halogen derivs. of $S(CH_2CH_2Cl)_2$ and its products of oxidation led to synthesis and investigation of a large no. of S compds. (Lawson and Dawson, *C. A.* **22**, 381; Mumford and Phillips, *C. A.* **22**, 1325; Phillips, Davies and Mumford, *C. A.* **23**, 2932; Mann and Poppe, *C. A.* **16**, 2110). Some of the most interesting and least available compds. of this type are halo sulfides with double bonds and their products of oxidation. $OS(CH:CH_2)_2$ (I) and $CH_2:CHSOCH_2CH_2Cl$ (II) were obtained by treating $OS(CH_2CH_2Cl)_2$ (III) with $NaHCO_3$: III + $NaHCO_3$ ⟶ II + H_2O + CO_2 + NaCl. and III + 2$NaHCO_3$ ⟶ I + 2H_2O + 2CO_2 + 2NaCl. By chlorination and bromination of I are obtained, resp., *α,α',β,β'-tetrachlorodiethyl sulfoxide* (IV) and *α,α',β,β'-tetrabromodiethyl sulfoxide* (V), which by splitting off 1 hydrogen halide with $NaHCO_3$ give *β,β'-dichlorodivinyl sulfoxide* (VI) and *β,β'-dibromodivinyl sulfoxide* (VII). The failure of VI and VII to produce with H the corresponding sulfides, and to give some reactions analogous to those of sulfoxides which have no halogen at the C united by the double bond, may be explained by the presence of 2 vinyl groups and 2 atoms of halogen in the *β* positions. *Exptl. part.* IV, m. 122.5°, was prepd. in 85% yield by conducting 15.4 g. of dry Cl (110% of theory obtained from the calcd. amt. of pure $KMnO_4$ and an excess of HCl) into 10 g. of I in 100 cc. of ice-cold abs. alc.; at the end of 3 hrs the temp. rose to 20°; the mixt. was allowed to stand overnight, and the white crystals were filtered off. The oxidation of 5 g. IV with $KMnO_4$ and H_2SO_4 (Müller and Metzger, *C. A.* **21**, 52) gave 1 g. of $ClCH_2CHClSO_3K$. VI, b_{10} 80–7°, m. 15°, d_{20} 1.417, was obtained in 85% yield by blowing steam into a mixt. of 64 g. of IV and 42 g. of $NaHCO_3$ in water, extg. the steam distillate with Et_2O, drying with anhyd. Na_2SO_4, and fractionating. V, m. 120.8°, was prepd. in 35–60% yield like IV by conducting gaseous Br into I. VII, m. 40.5–2°, was obtained in 75% yield as VI.

Chas. Blanc

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION





CA

10

Thio ketones of aliphatic series. I. The action of phosphorus pentasulfide on aliphatic ketones. A. E. Kretov and Ya. F. Kondakurov. *J. Gen. Chem.* (U. S. S. R.) 5, 388-91(1935).—Mixts. of powd. P_2S_5 with Me_2CO, MeCOEt, Et_2CO, Pr_2CO and $(Me_2C)_2CO$ in PhMe were refluxed on a water bath for 8 hrs., the reaction mixts. were steam-distd., the solns. of the thio ketones in PhMe were dried with $CaCl_2$, the PhMe distd. off *in vacuo* and the residues fractionated. Most of the thio ketones were obtained in small yields and impure state, boiling *in vacuo* within 10°. They are yellow-red liquids somewhat heavier than H_2O, easily sol. in org. solvents. Me_2CS, MeCSEt and Et_2CS are dimers, Pr_2CS a mixt. of a monomer with some dimer and $(Me_2C)_2CS$ a monomer. $(Me_2CS)_2$, b. 182–5°. $(MeCSEt)_2$, b_{10} 120 30°, mol. wt. 107 (found), 176 (calcd.), gives $(MeCSEt)_2 \cdot HgCl_2$. $(Et_2CS)_2$, b. 135–50°, mol. wt. 210 (found), 204 (calcd.), gives the $HgCl_2$ compd. Pr_2CS, b_{10} 135–50° (slight decompn.), mol. wt. 169 and 173 (found), 130 (calcd.). $(Me_2C)_2CS$, b_{10} 105–10°, gives the $HgCl_2$ compd. C. B.

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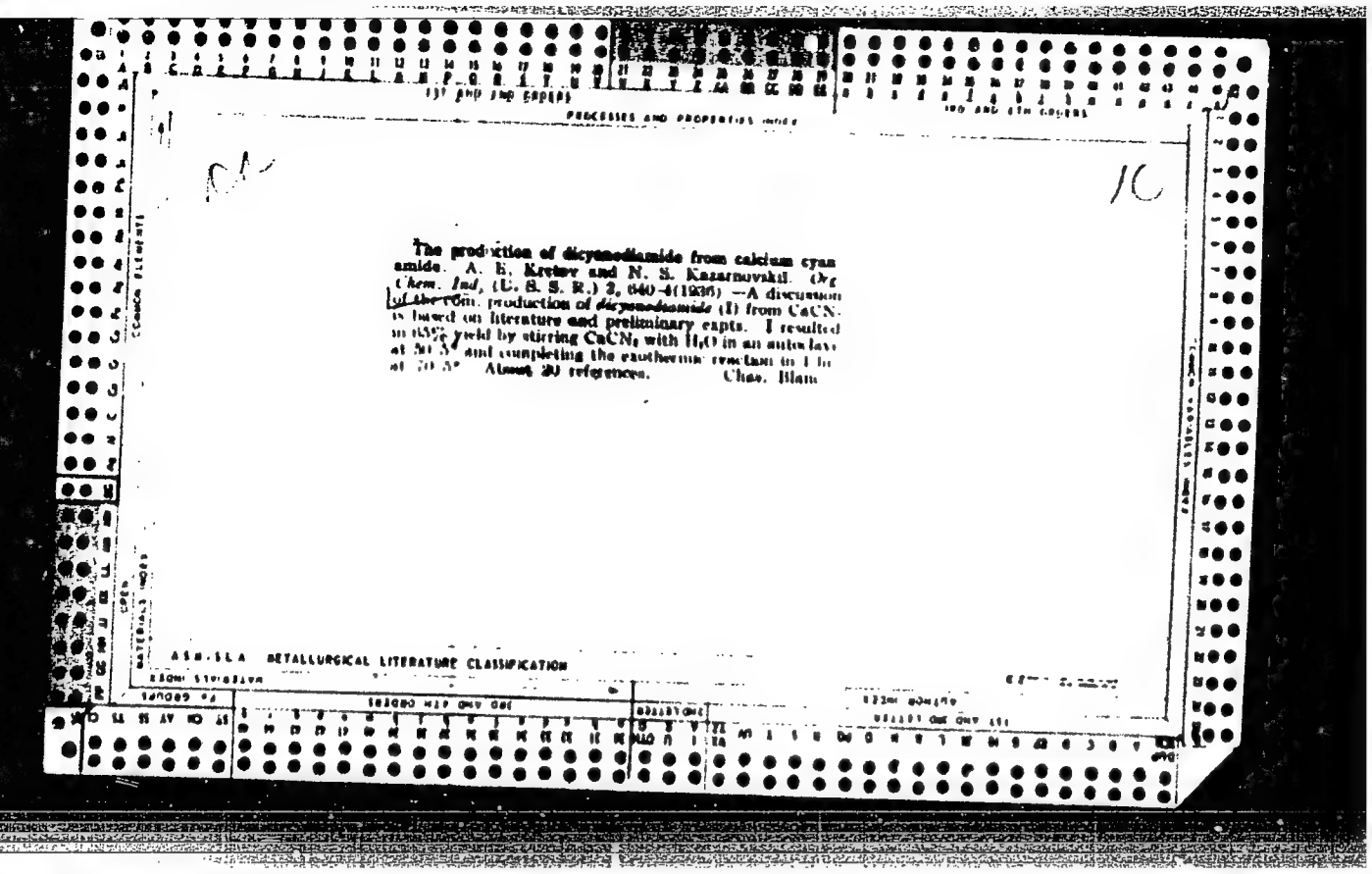
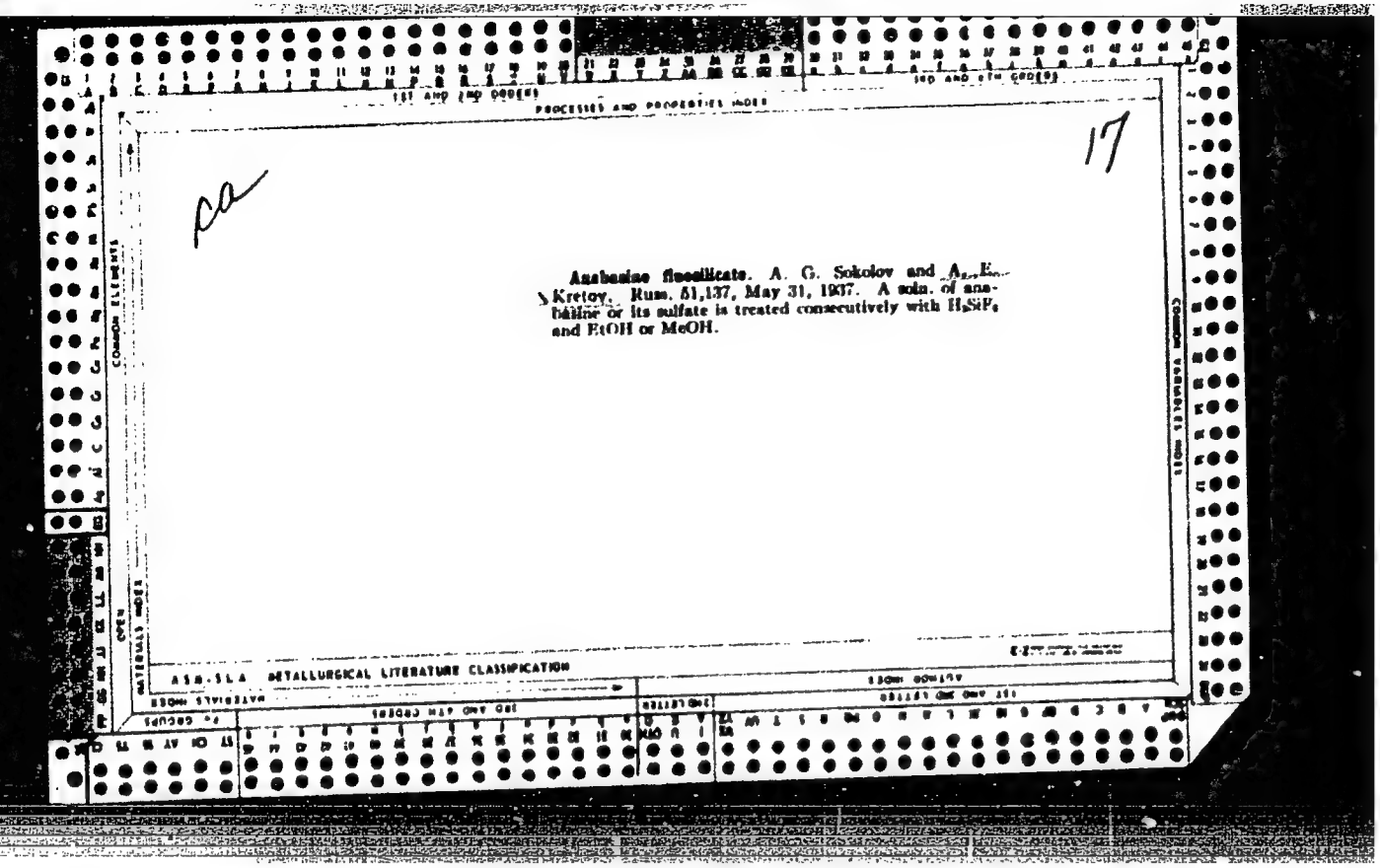


The production of dicyanodiamide from calcium cyanamide. A. E. Kretov and N. S. Kazarnovskil. (*Ž. Chem. Ind.*, (U. S. S. R.) 2, 640–4(1936).—A discussion of the com. production of *dicyanodiamide* (I) from CaCN$_2$ is based on literature and preliminary expts. I resulted in 65% yield by stirring CaCN$_2$ with H$_2$O in an autoclave at 50–5° and completing the exothermic reaction in 1 hr. at 70–5°. Almost 20 references. Chas. Blanc

A.S.M.-S.L.A. METALLURGICAL LITERATURE CLASSIFICATION



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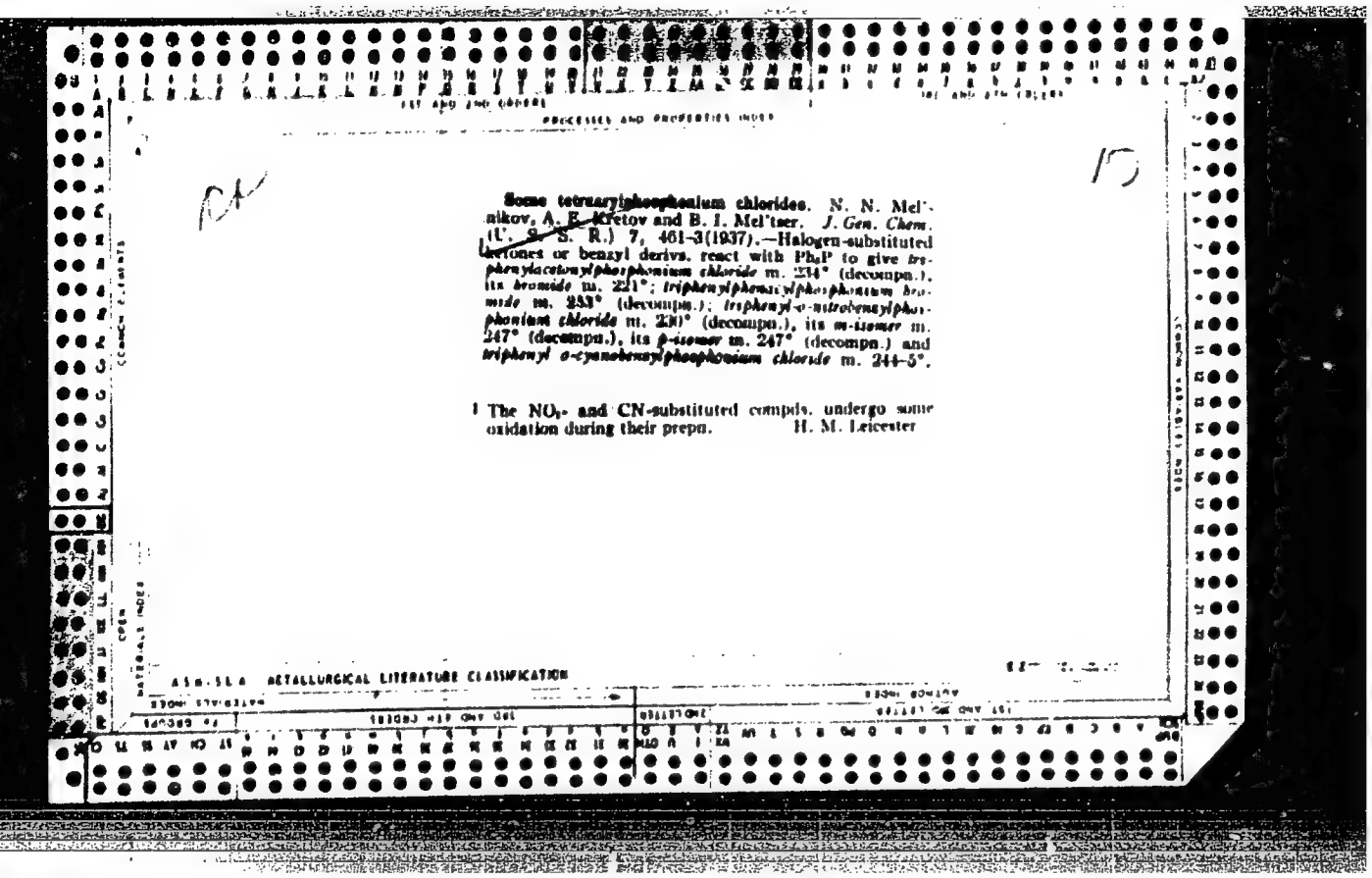
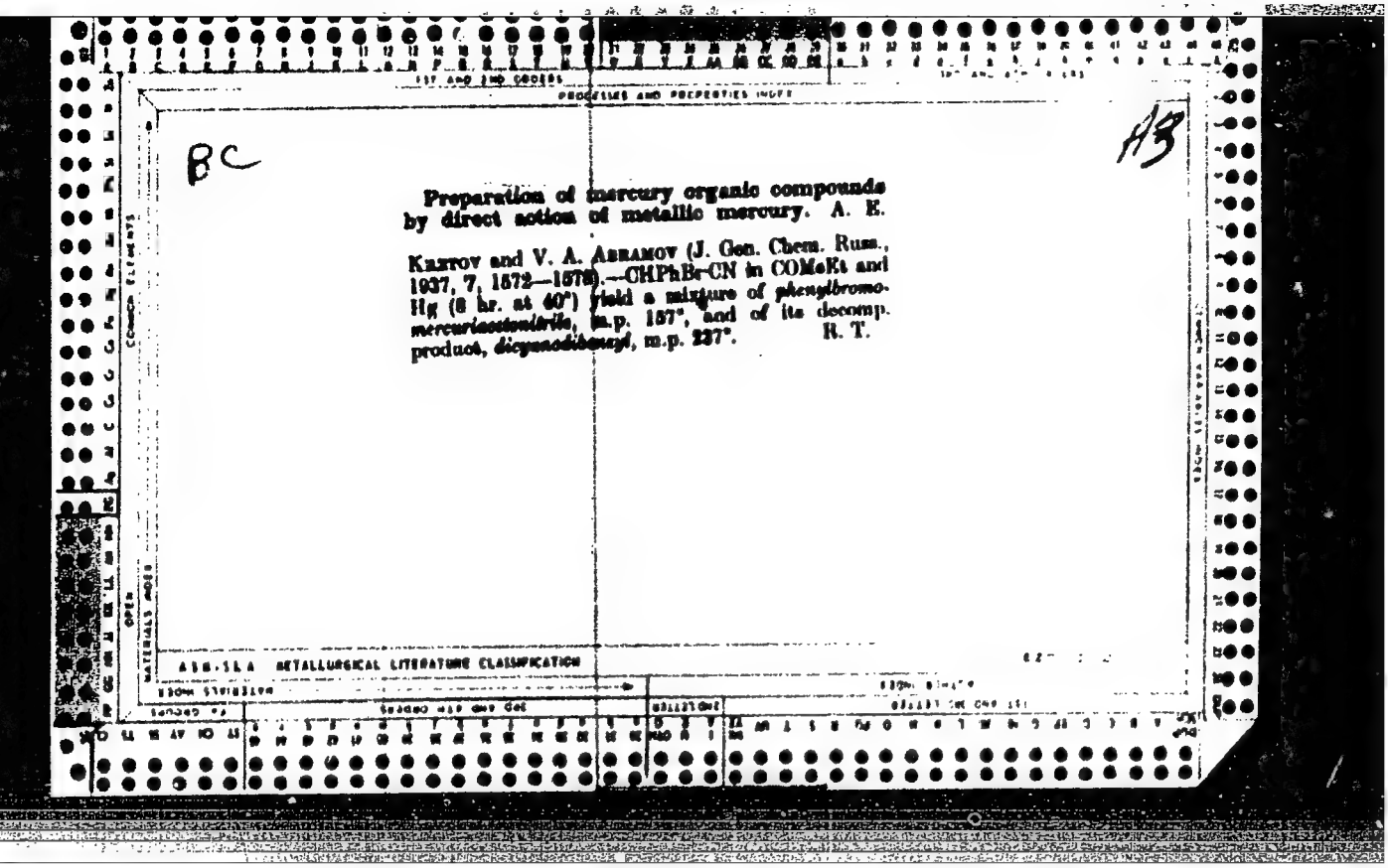
pa

Anabasine flocculicate. A. G. Sokolov and A. E. Kretov. Russ. 51,137, May 31, 1937. A soln. of anabasine or its sulfate is treated consecutively with H_2SiF_6 and EtOH or MeOH.



Some tetrarylphosphonium chlorides. N. N. Mel'nikov, A. E. Kretov and B. I. Mel'tser. *J. Gen. Chem.* (U. S. S. R.) 7, 461–3(1937).—Halogen-substituted ketones or benzyl derivs. react with PhI_3P to give *triphenylacetonylphosphonium chloride* m. 234° (decompn.), its *bromide* m. 221°; *triphenylphenacylphosphonium bromide* m. 253° (decompn.); *triphenyl-o-nitrobenzylphosphonium chloride* m. 230° (decompn.), its *m-isomer* m. 247° (decompn.), its *p-isomer* m. 247° (decompn.) and *triphenyl o-cyanobenzylphosphonium chloride* m. 244–5°.

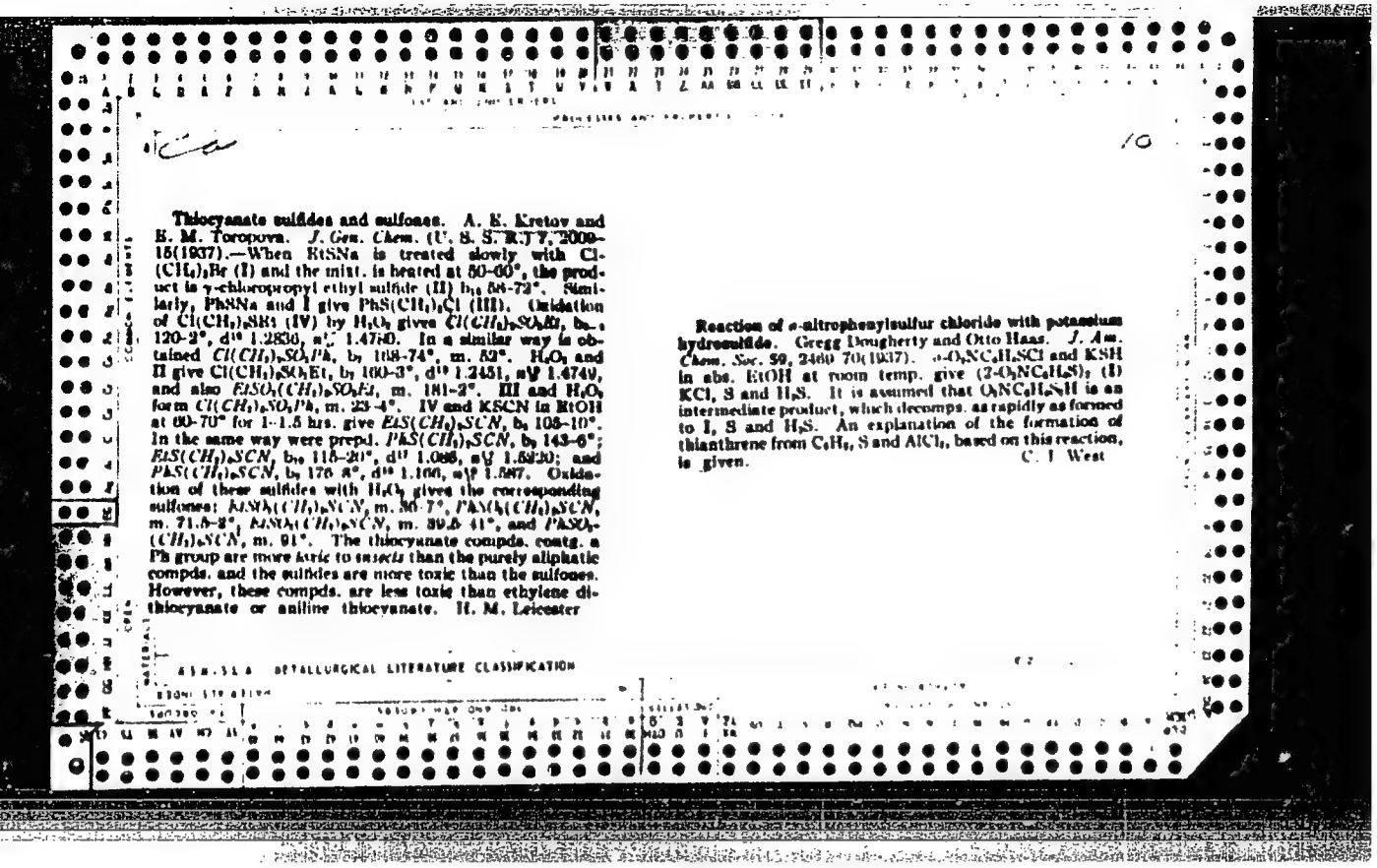
The NO_2- and CN-substituted compds. undergo some oxidation during their prepn. H. M. Leicester



BC

H3

Preparation of mercury organic compounds by direct action of metallic mercury. A. E. Kazrov and V. A. Abramov (J. Gen. Chem. Russ., 1937, 7, 1572—1578).—CHPhBr·CN in COMeEt and Hg (8 hr. at 40°) yield a mixture of *phenylbromomercuriacetonitrile*, m.p. 157°, and of its decomp. product, *dicyanodibenzyl*, m.p. 237°. R. T.



Thiocyanate sulfides and sulfones. A. E. Kretov and E. M. Toropova. *J. Gen. Chem.* (U. S. S. R.) 7, 2009–15(1937).—When RtSNa is treated slowly with Cl(CH_2)$_3$Br (I) and the mixt. is heated at 80–90°, the product is γ-chloropropyl ethyl sulfide (II) b_{14} 88–72°. Similarly, PhSNa and I give PhS(CH_2)$_3$Cl (III). Oxidation of Cl(CH_2)$_3$SEt (IV) by H_2O_2 gives *Cl*(CH_2)$_3$*SO*$_2$*Et*, $b_{0.5}$ 120–2°, d^{19} 1.2830, n_D^{20} 1.4760. In a similar way is obtained *Cl*(CH_2)$_3$*SO*$_2$*Ph*, b_7 168–74°, m. 52°. H_2O_2 and II give Cl(CH_2)$_3$SO$_2$Et, b_7 160–3°, d^{19} 1.2451, n_D^{19} 1.4749, and also *EtSO*$_2$(CH_2)$_3$*SO*$_2$*Et*, m. 181–2°. III and H_2O_2 form *Cl*(CH_2)$_3$*SO*$_2$*Ph*, m. 23–4°. IV and KSCN in EtOH at 60–70° for 1–1.5 hrs. give *EtS*(CH_2)$_3$*SCN*, b_4 108–10°. In the same way were prepd. *PhS*(CH_2)$_3$*SCN*, b_3 143–6°; *EtS*(CH_2)$_3$*SCN*, b_{10} 118–20°, d^{17} 1.086, n_D^{17} 1.5820; and *PhS*(CH_2)$_3$*SCN*, b_3 176.8°, d^{16} 1.166, n_D^{16} 1.587. Oxidation of these sulfides with H_2O_2 gives the corresponding sulfones: *EtSO*$_2$(CH_2)$_3$*SCN*, m. 56–7°, *PhSO*$_2$(CH_2)$_3$*SCN*, m. 71.5–2°; *EtSO*$_2$(CH_2)$_3$*SCN*, m. 39.5–41°, and *PhSO*$_2$-(CH_2)$_3$*SCN*, m. 91°. The thiocyanate compds. contg. a Ph group are more toxic to insects than the purely aliphatic compds. and the sulfides are more toxic than the sulfones. However, these compds. are less toxic than ethylene dithiocyanate or aniline thiocyanate. H. M. Leicester

Reaction of *o*-nitrophenylsulfur chloride with potassium hydrosulfide. Gregg Dougherty and Otto Haas. *J. Am. Chem. Soc.* 59, 2460–70(1937). *o*-$O_2NC_6H_4SCl$ and KSH in abs. EtOH at room temp. give (2-$O_2NC_6H_4S)_2$ (I) KCl, S and H_2S. It is assumed that $O_2NC_6H_4SH$ is an intermediate product, which decomps. as rapidly as formed to I, S and H_2S. An explanation of the formation of thianthrene from C_6H_6, S and $AlCl_3$, based on this reaction, is given. C. J. West

KRETOV, A. E.

Chemical Abst.
Vol. 48 No. 8
Apr. 25, 1954
Fuels and Carbonization Products

Chlorination of Ukrainian brown coal. A. E. Kretov, [illegible] Savin, M. I. Shenbor, and I. [illegible] Inst., Dnepropetrovsk). *Ukrain. Khim. Zhur.* [illegible] (1952)(in Russian).—Ukrainian brown coal [illegible] rich ted, yielding products that are sol. in org. solvents and are reactive. The products can be used as [illegible] resins and film-forming materials. The [illegible] light brown to orange and contain up to [illegible] Chlorination is possible in CCl_4 medium or in the presence of H_2O; in the latter case the reaction is substantially complete within 10 hrs. at 0-60° temp. range. G. M. K.

9-16-54

Salts of benzidine with carboxylic acids of the aliphatic series and the application of benzidine for determination of cis-trans isomers of unsaturated dicarboxylic acids. A. E. Kretov (Dnepropetrovsk Chem.-Technol. Inst.). *Sbornik Statei Obshchei Khim., Akad. Nauk S.S.S.R.* 1, 510–15 (1953).—Benzidine (I) forms with trans unsatd. dicarboxylic aliphatic acids almost colorless salts, while with cis isomers of the same acids, the salts are yellow-green or yellow. This fact can be used for detn. of configuration of the acids. Thus 2.3 g. I in EtOH treated with 2 g. *fumaric acid* gave the salt $C_{12}H_{12}O_4N_2$, m. 319–20°; reverse addn. gave the 1:2 salt $C_{28}H_{28}O_8N_4$, with a lower m. p. Reaction of 2.4 g. I in EtOH added to 2 g. *maleic acid* gave yellow-green salt, $C_{28}H_{28}O_8N_4$, whose m. p. is high and not const. owing to decompn.; addn. of 2 g. *maleic acid* to 0.5 g. I in EtOH gave grey-yellow salt, $C_{16}H_{16}O_4N_2$, m. 312–14°. *Mesaconic acid* (2 g.) added to 2.3 g. I in EtOH gave colorless $C_{28}H_{28}O_8N_4$, m. 174–5°; reverse order of mixing gave the same product. *Citraconic acid* and I gave the yellow salt, $C_{28}H_{28}O_8N_4$, decomp. about 330°. *Aconitic acid* and I gave also only $C_{42}H_{42}O_{12}N_4$. $[p\text{-}C_6H_4(NH_2)]_2$ added to excess *maleic acid* in EtOH gave a grey-blue salt, $C_{16}H_{16}O_8N_2$, decomp. 165°. With dibasic acids I formed a series of salts listed below with the molar ratio of the acid to I given in parentheses; *oxalic* (1:1), decomp. above 400°; *paraconic* (1:1), m. 149°; *malonic* (1:2), m. 158–9°; *chloromalonic* (1:1), decomp. 340°; *succinic* (1:2), m. 164–5°; *dibromosuccinic* (1:1), decomp. with loss of Br; *glutaric* (1:2), m. 120–1°; *adipic* (1:2), m. 146°; *chloromalic* (1:1), m. p. not sharp; *citric* (1:2), decomp.; *pyromucic* (1:2), m. 332–4°; *tricarballylic* (1:2), m. 161–2°; $ClCH_2CO_2H$ (2:1), m. 288–9°; *tartaric* (1:1), decomp.; *acetylenedicarboxylic* (1:1); *itaconic* (1:1). While aconitic acid forms a 1:3 salt with I, the unsatd. *cis*-isomers of dicarboxylic acids form salts with 2 moles I per 3 moles acid. Stronger acids give 1:1 salts. G. M. Kosolapoff

Kretov, A.E.

USSR.

Reaction of N,N-dichlorobenzenesulfonamide with alcohol. I. Reaction of N,N-dichlorobenzenesulfonamide with primary fatty alcohols. A. E. Kretov and K. A. Chervinskii. *Ukrain. Khim. Zh.*, 19: 159-63(1953); *Referat. Zhur., Khim.*, 1954, No. 21503.—The reaction of N,N-dichlorobenzenesulfonamide (I) with MeOH (II), EtOH (III), BuOH (IV), iso-BuOH (V), or octyl alc. (VI) proceeds as follows: $PhSO_2NCl_2 + 2RCH_2OH \rightarrow PhSO_2NH_2 + RCO_2CH_2R + HCl$. As by-products are formed acetal, monochloracetal, a chlorinated ester, and an α-chloro ether and products more highly chlorinated. The rate of reaction increases from II to VI. The reaction is accelerated by light and is autocatalytic (catalyzed by HCl); in the presence of pyridine the rate of reaction is lowered 100-times. It is assumed that the true oxidizing agent is mol. Cl liberated during the reaction. The aldehyde formed produces a semi acetal which under the influence of Cl or HCl transforms into one of the end-products of the reaction. A soln. of 45.2 g. of I in 250 ml. of II irradiated for 8 hrs. at 20°, the mixt. neutralized with Na_2CO_3 yields upon distn. HCO_2Me 38 and methylal 18%. To a mixt. of 180 g. C_6H_6 and 15.3 g. of III is added over a period of 3 hrs. 37.7 g. of I; in the reaction mixt. was found: Et acetate 64, acetal 17.0, aldehyde 2, and combined Cl 0.8%. Upon oxidation of 34.7 ml. of IV in 169 ml. of C_6H_6 with 37.7 g. of I at 5-10° was obtained after distn. BuO_2CPr 60.5, acetal 7.8, chloroacetal 6.5, and chlorobutyl Bu ether 0.2%. Oxidation of 180 ml. V with 56.5 g. I in the presence of 50 g. pyridine (60 hrs. at approx. 20° and 2 hrs. at 50°) followed by steam distn. and fractionation of the distillate was obtained: PrCHO 18 and iso-BuO_2CPr-iso 65%. Oxidation of 21.7 g. of VI in 175 ml. C_6H_6 with 18.8 g. of I was obtained 21.3 g. of a substance b. 80-110° in which was found:

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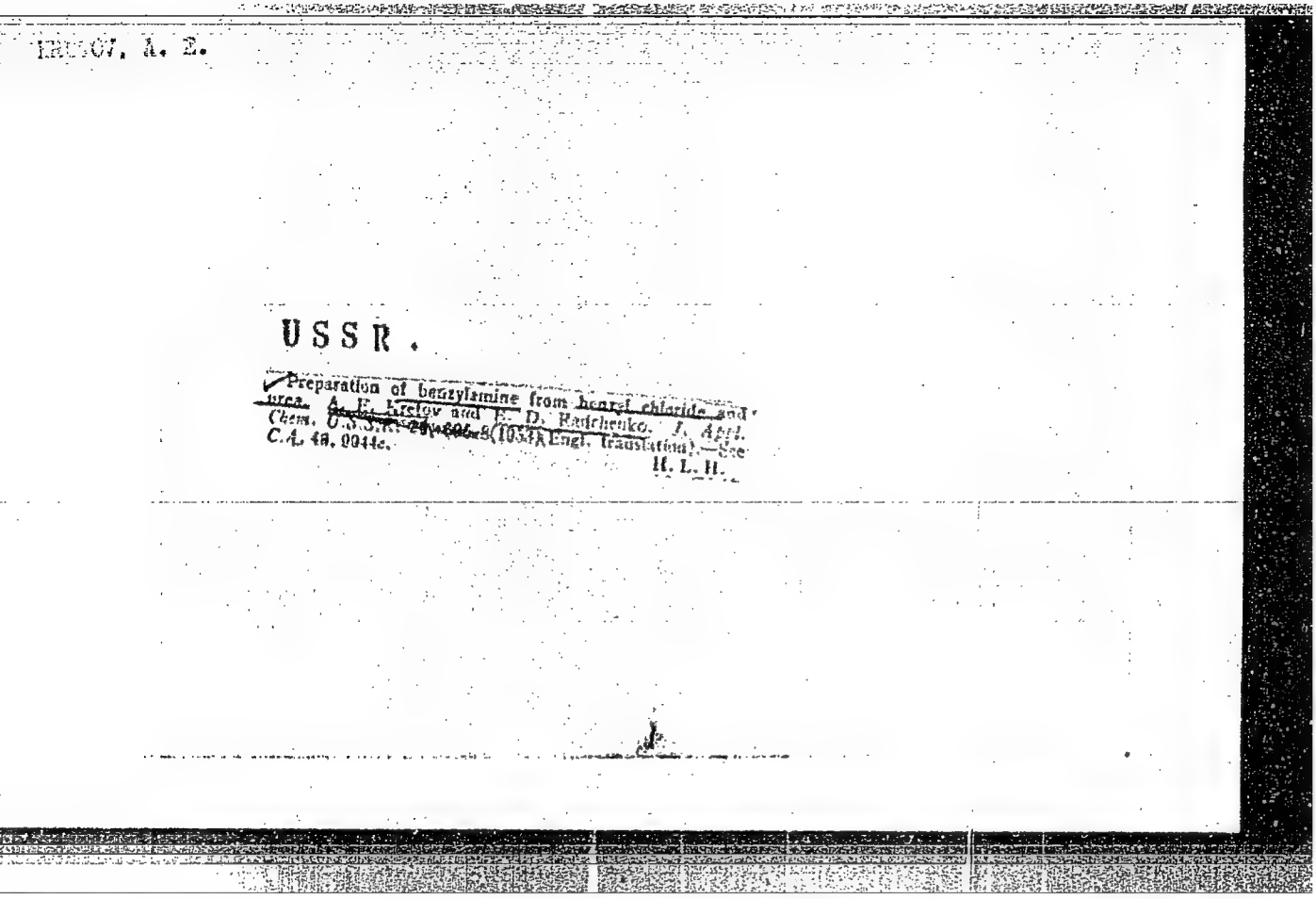
octyl caprylate (E. I and combined Cl 24%. II. Reaction of *N,N*-dichlorobenzenesulfonamide with benzyl alcohol. K. A. Chernyshkin and A. E. Kretov. *Ukrain. Khim. Zhur.* 19, 401-4; *Referat. Zhur., Khim.* 1954, No. 21309.— *N,N*-Dichlorobenzenesulfonamide (I) reacts violently with $PhCH_2OH$ (II). The reaction can be carried out only with small concns. of I and intense cooling. The reaction products are BzH (III) and benzyl benzoate (IV) in approx. equal yields. In CaH_6 soln. light increases the total yield and the relative yield of IV. In CCl_4 the total yield is lower than in CaH_6 and the yield of III somewhat higher. Light lowers the total yield at the expense of III while the yield of IV increases. It is assumed that in the decompn. of alkyl hypochlorites (V), a radical chain reaction, the 1st stage is dissocn. $RCH_2OCl \rightleftarrows RCH_2O\cdot + Cl\cdot$ which occurs under the influence of light, increase of temp., or by interaction with alc. mols. In the end forms an aldehyde and HCl [$RCH_2OCl \rightarrow RCHO + HCl$ (cf. preceding abstr.)]. Aldehyde forms with alc. a semi acetal which is oxidized to an ester and HCl catalyzes the reaction of I with alc. The rate of V decompn. dets. the rate of alc.

oxidation and forms the ester in CCl_4. V can l[illegible] because of an oxid[illegible]tion with the solvent ([illegible] + CCl_3 ⇌ HCl[illegible] + C_2Cl_6). This lowers the conc. of the aldehyde and the rate of hemiacetal formation which in turn results in a lower yield of ester. The yield of the end products can also be lowered because of chlorination reaction with atomic Cl liberated from V or I. Light hastens the decompn. of V and favors an increased yield of ester but at the same time increases also dissocn. and liberation of Cl which causes an increase in chlorination products and a drop in the yield of the basic product. In C_2H_4 the decompn. of V proceeds rapidly and the chain reaction with Cl are soon arrested; this causes an increase in the yield of ester. With an excess of II (without solvent) is formed dibenzyl ether. This is formed during distn. of the reaction mixt. contg. an excess of II and satd. with HCl. It was shown that upon distn. of pure II after letting it stand with HCl was formed dibenzyl ether with a yield of approx. 20%. In the presence of pyridine the yield of dibenzyl ether is higher, presumably because the HCl fixed by pyridine does not volatilize in the 1st stages of distn. Based on this it was assumed that the reaction of I with a mixt. of 2 alcs. differing widely in their rate of reaction with I will form an ester with an acid radical derived from the rapidly reacting alc. and an alc. radical derived from the slow reacting alc. Indeed, in the reaction of I with a mixt. of II (explosive reaction) and MeOH (reaction requiring 7 days) was obtained Me benzoate with a yield of approx. 69.3%. This is explained as follows: first, II is oxidized to III, III forms a hemiacetal of MeOH, and this on oxidation produces Me benzoate.

M. Hoseb[illegible]



BRUSOV, A. E.

USSR.

Preparation of benzylamine from benzyl chloride and urea. A. E. Brusov and E. D. Radchenko. J. Appl. Chem. U.S.S.R. 20, 806-8 (1934) Engl. translation). See C.A. 48, 9044e.

H. L. H.

(3) 6

Preparation of benzylamine from benzyl chloride and urea. A. E. Kretov and E. V. Rudchenko (Dnepropetrovsk Chem.-Technol. Inst.). *Zhur. Prikład. Khim.* 26, 1347-8(1953).—In the reaction of $PhCH_2Cl$ with urea there are first formed mono- and dibenzylurea, which, heated with alkali yield $PhCH_2NH_2$. The best yield of benzyl- and dibenzylurens is 70% (based on RCl), obtained by refluxing 1 mole $PhCH_2Cl$ with 2 moles urea and 0.83 mole H_2O 5 hrs. Generally higher temps. and lesser concns. of H_2O result in a higher dibenzylurea content in the product. The alkylated urea fused with NaOH at 250-75° yields 94-5% techn. $PhCH_2NH_2$. Redistn. gives the pure amine, b. 183-6°, d_4^{20} 0.9802, n_D^{20} 1.5300. G. M. Kosolapoff

KRETOV, A.E.

USSR

Mobility of halogen in 1-halo derivatives of anthraquinone. I. N. I. Artem'ev and A. E. Kretov. J. Appl. Chem. U.S.S.R. 25, 1219-24(1955)(Engl. translation). II. 1225. 1249-51.—See C.A. 46, 1307Ocd. H. L. H.

Mobility of halogens in 1-halo derivatives of anthraquinone. I. N. I. Ariamov and A. E. Kreiav (Dnepropetrovsk Chem.-Technol. Inst.). Zhur. Obshchei Khim. 15, 1310-13 (1945). Cf. Ullmann and Minaev, C.A. 6, 1440.—The Minaev-Ullmann reaction proceeds in the direction of formation of anthraquinone from 1-chloroanthraquinone in the presence of acetates and benzoates of K or Na in polar solvents such as $PhNO_2$, 1,2,4-$C_6H_3Cl_3$, Ph_2O, Ph_2SO_4; the K salts accelerate the reaction some 2-3 times more than do the Na salts. K_2CO_3, Na_2CO_3, Na silicate, etc. instead of the org. acid salts give blanthraquinone. In cases in which anthraquinone is the principal reaction product, the by-products are: 1.5-2.0% 1-hydroxyanthraquinone and 2-2.5% bianthraquinone. In nonpolar solvents the cleavage of halogen from chloroanthraquinone proceeds similarly, but the reaction is much less rapid. $PhNO_2$ is not a specific substance in the reaction; Ph_2SO_4 gives analogous results. $C_6H_3Cl_3$ and Ph_2O give much lower reaction rates. II. *Ibid.* 1310-13.—In the Ullmann-Minaev dehalogenation of 1-chloroanthraquinone in the presence of acetates of alkali metals and a Cu catalyst, the acetate radical suffers decompn., yielding CO_2 and $HOCH_2CO_2H$. The reduction of chloroanthraquinone proceeds at the expense of the H of K or Na acetates. Since only partial isolation of products has been accomplished, no complete reaction mechanism is proposed at this time. G. M. K.

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Chemism of dehalogenation in the series of 1-halogen derivatives of anthraquinone. Zhur.prikl.khim. 26 no.12:1310-1313 D '53. (MLRA 6:11)

1. Kafedra organicheskoy khimii Dnepropetrovskogo khimiko-tekhnologicheskogo instituta. (Anthraquinone) (Halogenation)

KRETOV, A. Ye.

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Syntheses of aralkylamines from chloromethylaryl compounds. A. E. Kretov and R. R. Chertok (Inst. Chem. Technol., Dnepropetrovsk). *Ukrain. Khim. Zhur.* 20, 293-300(1954)(in Russian).—*p*-Tolylamine, *p*-$MeOC_6H_4CH_2NH_2$ (I), and α-naphthylmethylamine were prepd. by a new synthesis consisting of (1) chloromethylation, (2) condensation of the $ClCH_2$ derivs. with urea, and (3) decompn. of the condensation products with alkali. Thus, a mixt. of 200 ml. anisole, 200 ml. concd. HCl and 53 g. trioxymethylene agitated 4 hrs. at 8–10°, and the org. layer sepd. and distd. gave 95 g. *p*-$ClCH_2C_6H_4OMe$ (II), b_8 76–88°, which when refluxed with urea in H_2O, the mixt. steam distd., the residue sepd., dried, dispersed in boiling H_2O, filtered, the filtrate let stand until crystals appeared (12–16 hrs.), and these filtered off gave 75% *p*-anisylurea. This (10 g.) and 4 g. NaOH mixed, kept 1 hr., and distd. at 240–70° gave 91% I. The other amines were prepd. similarly. CuCl increased catalytically the yield of *N,N'*-bis(naphthylmethyl)urea. The factors affecting the reactions at the various stages are described in some detail. Gary Gerard

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KRETOV, A. Ye.

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Abstract : The structure and properties of dicyandiamide are discussed and its reactions thoroughly reviewed. 100 references (6 U.S.S.R.):1862-1951. 1 table.

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KRETOV, A. E.

Reactivity of chlorine in chlorinated brown coal. M. I. Shenber, A. E. Kretov, and M. L. Savin (*Ukr. khim. Zh.*, 1955, 21, 636–640).—Brown coal was treated with Cl_2 (*a*) in presence of water at 20 or 100°, or (*b*) in presence of $SbCl_5$ at 100 or 200°, or (*c*) it was heated to 325° with $SbCl_5$ in a sealed tube after treatment as in (*b*). It was found that only products from (*c*) were relatively inert to hydrolytic agents, which indicated that that treatment was necessary for complete splitting-off of side-chains from the molecules so as to leave only chlorinated aromatic nuclei. From the results it was inferred that the degree of aromatisation of the brown-coal sample used was 42%. E. W. Stevenson.

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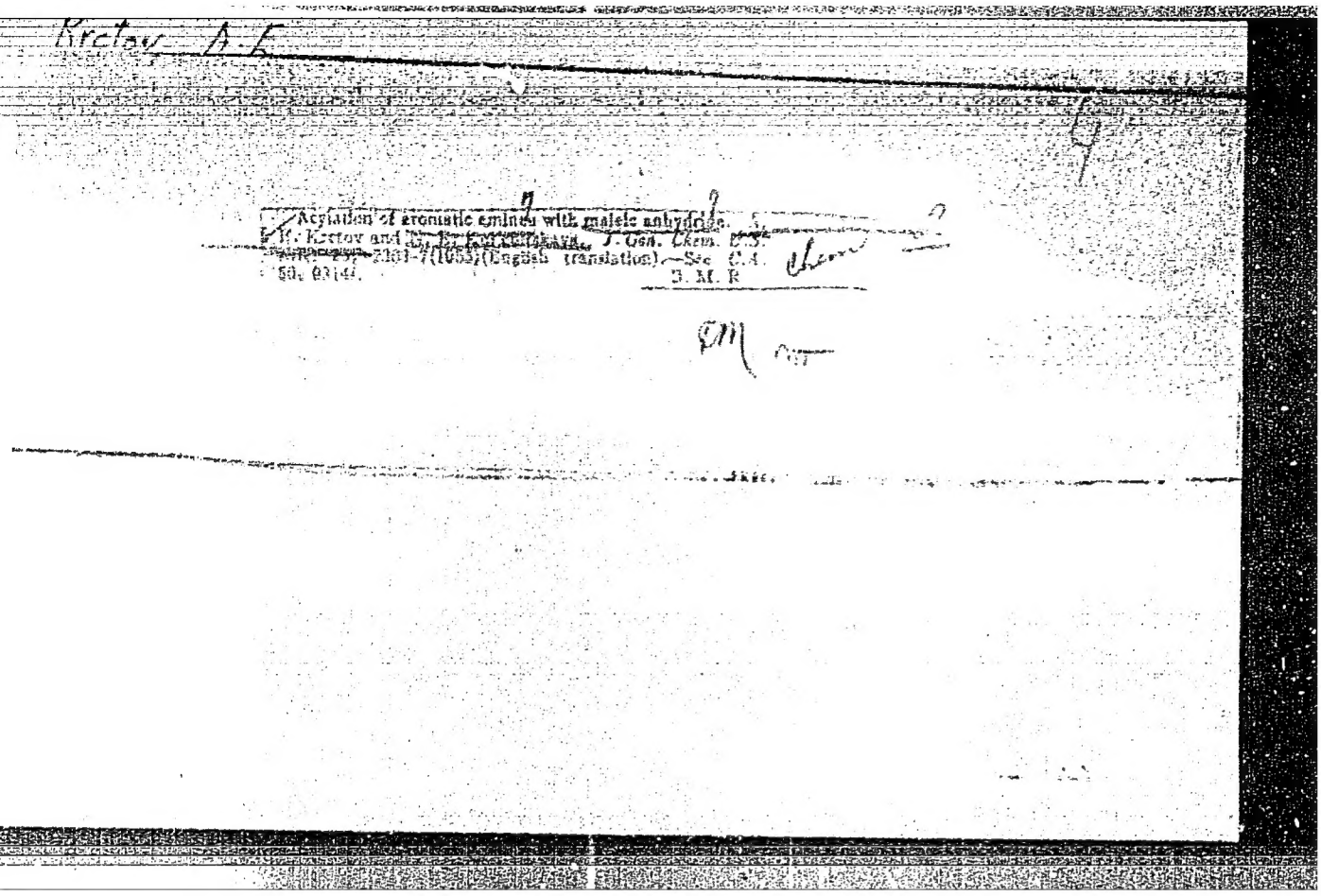

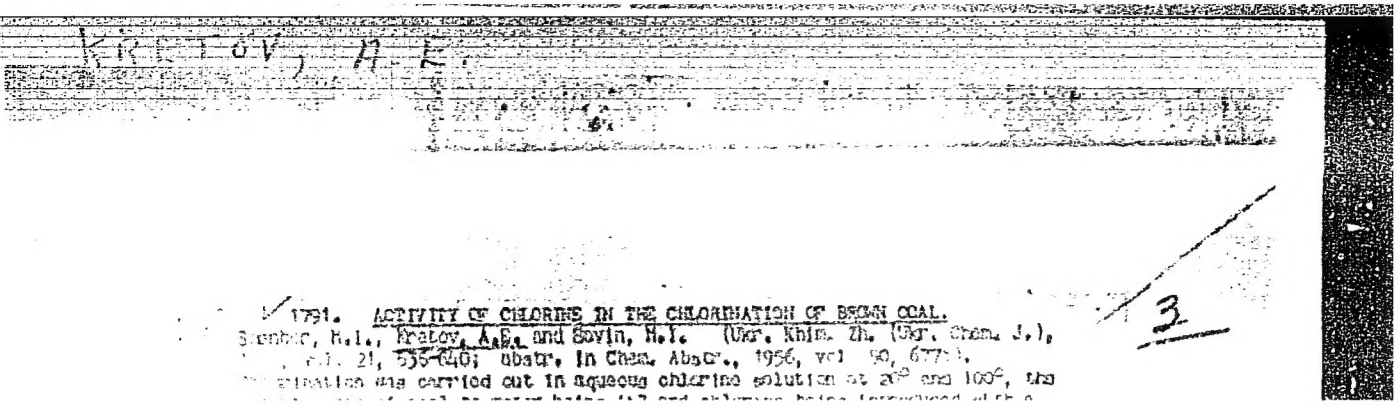

KRETOV, A. E.

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1791. ACTIVITY OF CHLORINE IN THE CHLORINATION OF BROWN COAL.
[illegible], K.I., Kratov, A.E. and Sovin, M.I. (Ukr. Khim. Zh. (Ukr. Chem. J.), [illegible], vol. 21, 535-540; Abstr. in Chem. Abstr., 1956, vol. 50, 6771).
[illegible] was carried out in aqueous chlorine solution at 20° and 100°, the